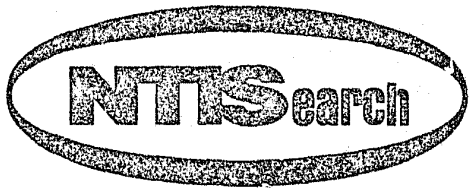


NTIS/PS-76/0965

# Intrusion and Weapon Detection:

# Crime Prevention

Citations from the NTIS Data Base

**Search period covered**

1964 - October 1976



NTIS National Technical Information Service
U.S. DEPARTMENT OF COMMERCE
Springfield, Virginia 22161

| BIBLIOGRAPHIC DATA SHEET | 1. Report No. | 2. | 3. Recipient's Accession No. NTIS/PS-76/0965 |
|---|---|---|---|
| 4. Title and Subtitle<br>Intrusion and Weapon Detection: Crime Prevention (Citations from the NTIS Data Base) | | | 5. Report Date<br>December, 1976<br>6. |
| 7. Editor:<br>Guy E. Habercom, Jr. | | | 8. Performing Organization Rept. No. |
| 9. Performing Organization Name and Address<br>National Technical Information Service<br>5285 Port Royal Road<br>Springfield, Virginia 22161 | | | 10. Project/Task/Work Unit No.<br>11. Contract/Grant No. |
| 12. Sponsoring Organization Name and Address<br>Same | | | 13. Type of Report & Period Covered<br>1964 - Oct., 1976<br>14. |

15. Supplementary Notes Supersedes NTIS/PS-75/809. For the companion Published Search of the Engineering Index Data Base, see NTIS/PS-76/0966.

16. Abstracts

Personnel and weapon detection methods are investigated in these Government-sponsored research reports. Metal detection of guns, antiintrusion devices, (e.g., burglar alarms, trip wires, etc.) and nuclear security are among the topics reviewed. Some of the reports are relative to military applications but could conceivably find civilian uses. (This updated bibliography contains 85 abstracts, 10 of which are new entries to the previous edition.)



17c. NTIS Field/Group 63, 92, 79



| 18. Availability Statement | 19. Security Class (This Report) UNCLASSIFIED | 21. No. of Pages |
|---|---|---|
| | 20. Security Class (This Page) UNCLASSIFIED | 22. Price $25.00 |

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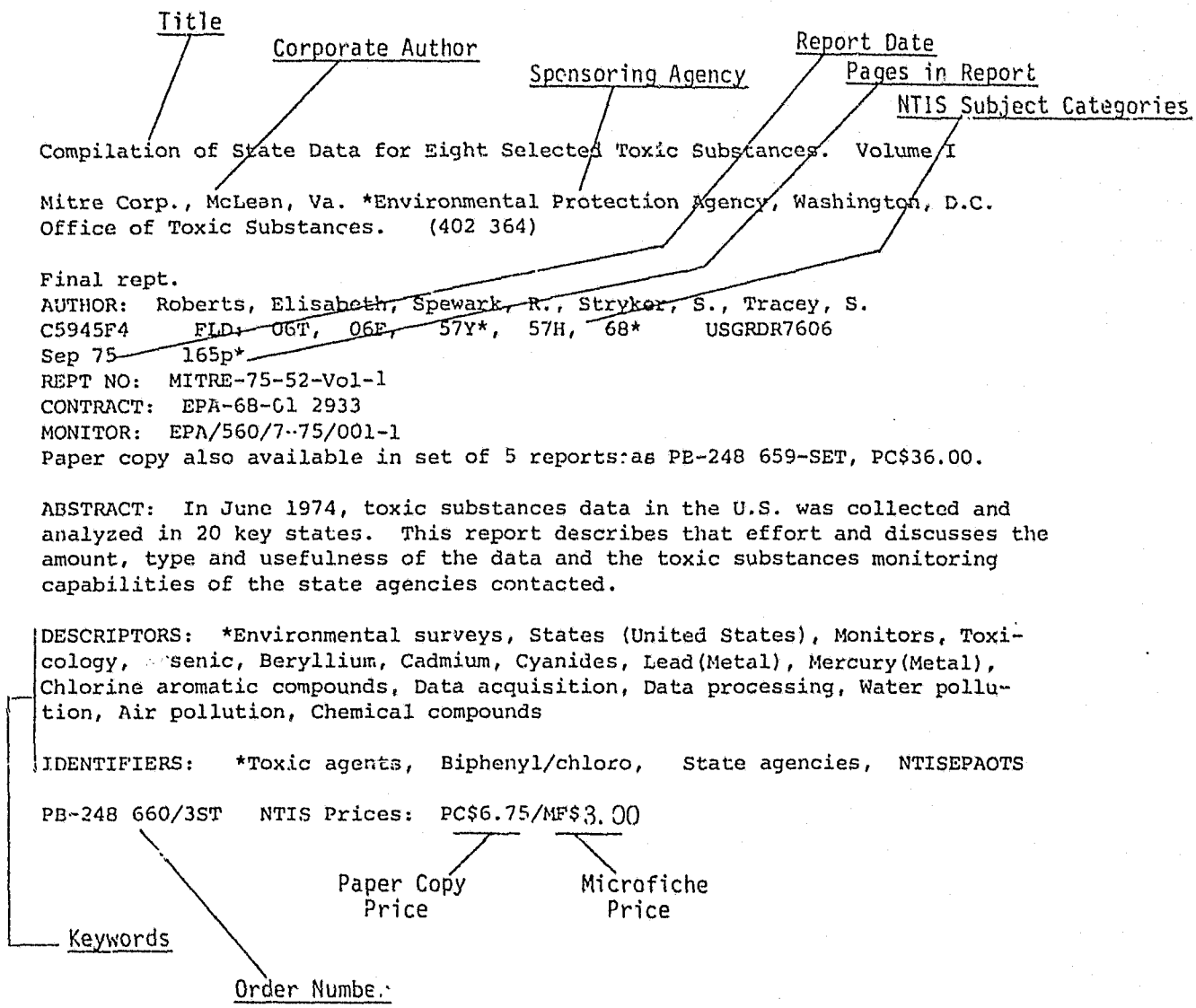
## SAMPLE ENTRY OF A CITATION FROM THE NTIS DATA BASE




**NOTE:** Prices are subject to change. See colored pages in back of search for current price list.

Terms and Definitions for Intrusion Alarm Systems

National Inst. of Law Enforcement and Criminal Justice, Washington, D.C.*National Bureau of Standards, Washington, D.C.
AUTHOR: Stenbakken, G. N., Phillips, W. E., Bergsman, S. E.
C7151B3 FLD: 5B, 5K, 88E, 92C, 91C, 94H, 86V GRAI7620
Oct 74 21p
REPT NO: LEAA-LESP-RPT-0305.00
MONITOR: 18

ABSTRACT: The report is an alphabetical compilation of over 300 definitions for commonly used terms. Included are all kinds of detectors, sensors, alarms, alarm systems, and electrical components.

DESCRIPTORS: *Burglar alarm systems, *Dictionaries, Warning systems, Terminology, Electronic security, Definitions, Law enforcement

IDENTIFIERS: NTISJDLEAA

PB-255 872/4ST NTIS Prices: PC$3.50/MF$3.00

Crimes and Crime Prevention (A Bibliography with Abstracts)

National Technical Information Service, Springfield, Va. (391 812)

Rept. for 1964-May 76
AUTHOR: Adams, Gerald, Lehmann, Edward J.
C6731J2 FLD: 05K, 05D, 92C*, 91C*, 86W GRAI7615
Jun 76 196p*
MONITOR: 18
Supersedes NTIS/PS-75/245.

ABSTRACT: Abstracts of studies on crimes and crime prevention are presented in this bibliography of Federally-funded research. The crimes include vandalism, murder, rape, pilferage, assault, fencing, and larceny. Crime prevention systems for homes, industry, and vehicles are also covered. Law enforcement studies not dealing directly with crime prevention have been excluded. Some of the studies deal with crime statistics and crime prevention through social services, as well as police planning and training to reduce crime. (This updated bibliography contains 191 abstracts, 58 of which are new entries to the previous edition.)

DESCRIPTORS: *Bibliographies, *Crime prevention, *Crimes, Criminal investigations, Law enforcement, Vandalism, Homicide, Juvenile delinquency, Countermeasures, Crime reduction, Warning systems, Community relations, Police, Specialized training, Security

IDENTIFIERS: Larceny, Pilferage, Rape, Assaults, Fencing, NTISNTIS

NTIS/PS-76/0456/4ST NTIS Prices: PC$25.00/MF$25.00

Electromagnetic Intrusion Sensor for Project 38-17

Naval Surface Weapons Center White Oak Lab Silver Spring Md (391596)

Technical rept.
AUTHOR: Giorgis, R. O., Kitzmiller, F. C., Terrell, J. D.
C5834E2 FLD: 17I, 63H, 74I GRAI7605
Mar 75 44p
REPT NO: NSWC/WOL/TR-75-13
PROJECT: SF32-311, SEA-184-912 024-2
TASK: SF32-311-216
MONITOR: 18

ABSTRACT: A lightweight, low cost, low power drain electromagnetic intrusion sensor was built and tested. Theoretical and experimental design techniques are discussed. Preliminary test data is included. (Author)

DESCRIPTORS: *Intrusion detectors, Intrusion detection, Electromagnetic radiation, Electromagnetic fields, Lightweight, Low costs, Power supplies, Transmitters, Antennas, Signal processing, Delay lines

IDENTIFIERS: NTISDODXA, NTISDODN

AD-A019 308/6ST NTIS Prices: PC$4.00/MF$2.25

Seismic and Environmental Characteristics of the Sensor Test Areas in the Panama Canal Zone. Report 2, Wet-Season Conditions

Army Engineer Waterways Experiment Station Vicksburg Miss (038100)

Technical rept.
AUTHOR: Marcuson, William F. III, Leach, Roy E.
C5633B4 FLD: 17J, 63I GRAI7602
May 73 145p
REPT NO: WES-TR-M-72-2
PROJECT: DA-4-A-062122-A-854
MONITOR: 18

ABSTRACT: Field data were collected in the second part of a two-part study to establish seismic response characteristics, their distribution, and the environmental factors that control them in two seismic sensor test areas (Gamboa and Alpha), which are located at the U.S. Army Tropic Test Center (TTC) in the Panama Canal Zone. The data were gathered during the 1971 wet season. Detailed seismic and environmental data are presented, and special seismic response tests (drop-hammer, man-walking, vegetation-effects, repeatability, and ambient-noise) conducted in various environmental conditions at 24 sites in the Gamboa test area and 11 sites in the Alpha test area are described. In addition to seismic response and terrain factor complex maps prepared from the measured data, the empirical regression equations resulting from a multicorrelation analysis are shown to relate the seismic response descriptors (peak particle velocity, peak summed particle velocity, and frequency) to the environmental parameters. Color illustrations reproduced in black and white.

DESCRIPTORS: *Tropical regions, *Environments, *Seismic detection, Antiintrusion devices, Terrain intelligence, Seismic waves, Diurnal variations, Computer programming, Panama Canal

IDENTIFIERS: *Wet seasons, NTISDODA

AD-AC17 724/6ST NTIS Prices: PC$6.00/MF$2.25

Report of Program Review of Seismic Sensor Systems Investigation (3rd) Held at the Army Research Office, Highland Building, Arlington, Virginia on 15 February 1973

Army Engineer Waterways Experiment Station Vicksburg Miss (038100)
C5633C4 FLD: 17J, 63I, 74I GRAI7602
Nov 73 254p
PROJECT: DA-1-T-162112-A-131
MONITOR: 18

ABSTRACT: At the suggestion of the U.S. Army Engineer Waterways Experiment Station (WES), a conference was held at the U.S. Army Research Office, Highland Building, Arlington, Virginia, on 15 February 1973 to review the progress of various seismic sensor studies being conducted by the WES and other agencies and to afford an opportunity for comments and recommendations. The papers presented at this meeting are published in full herein, and are followed by a summary of pertinent discussion and questions.

DESCRIPTORS: *Antiintrusion devices, *Seismic detection, *Meetings, Seismic signatures, Vehicles, Personnel detection, Personnel detectors, Data acquisition

IDENTIFIERS: NTISDODA

AD-A017 728/7ST NTIS Prices: PC$9.00/MF$2.25

A Performance Standard for Walk-Through Metal Detectors

National Bureau of Standards, Washington, D.C.*National Inst. of Law Enforcement and Criminal Justice, Washington, D.C. (240 800)

Final rept.
AUTHOR: Mills, Robert M.
C5541E3 FLD: 14B, 17F, 86V GRAI7526
Aug 74 5p
MONITOR: 18
Sponsored in part by National Inst. of Law Enforcement and Criminal Justice, Washington, D.C.
Pub. in Paper on Proceedings of Carnahan and International Crime Countermeasures Conference (1974), UKY Bulletin 105 p78-82 Aug 74.

ABSTRACT: The Law Enforcement Standards Laboratory at the National Bureau of Standards (NBS) is developing performance standards for equipment used in the criminal justice system. They will be promulgated primarily by the National Institute of Law Enforcement and Criminal Justice, Department of Justice. The paper discussed the development of a standard for walk-through metal weapon detectors. The standard contains requirements and test methods for such things as detection performance, effects of walking speed and throughput rate, alarm indicator, controls, stability, ambient and generated magnetic field, and interference with other detectors.

DESCRIPTORS: *Standards, *Detectors, Metals, Weapons, Magnetic detection

IDENTIFIERS: Reprints, *Metal detectors, NTISCOMNBS, NTISJLLEAA

COM-75-50654/3ST NTIS Prices: Not available NTIS

Physical Principles of Thermoluminescence and Recent Developments in Its Measurement

Brookhaven National Lab., Upton, N.Y. (0936000)
AUTHOR: Levy, P. W.
C5485G2 FLD: 7E, 99E NSA3208
1974 18p
REPT NO: CONF-7409128-1
MONITOR: 18

ABSTRACT: The physical principles which are the basis of thermoluminescence techniques for dating and authenticating archaeological and fine art objects are described in non-technical terms. Included is a discussion of the interaction of alpha particles, beta rays, i.e., energetic electrons, and gamma rays with solids, particularly electron-hole ion pair formation, and the trapping of charges by crystal imperfections. Also described is the charge-release process induced by heating and the accompanying emission of luminescence resulting from charge recombination and retrapping. The basic procedure for dating and/or authenticating an artifact is described in a ''how it is done'' manner. Lastly, recently developed apparatus is described for simultaneously measuring luminescent light intensity and wavelength and sample temperature. Examples of studies made with this ''3-D'' apparatus are given and applications to dating and authenticating are described.

DESCRIPTORS: (*Age estimation, Thermoluminescence), (*Thermoluminescence, *Radioinduction), (*Archaeological specimens, Age estimation), Alpha particles, Beta particles, Crime detection, Electric charges, Electrons, Gamma radiation, Measuring methods, Physical radiation effects, Solids, Trapping

IDENTIFIERS: NTISERDA

BNL-20210 NTIS Prices: PC$4.00/MF$2.25

Application of Crime Countermeasures for the Protection of Nuclear Materials

Argonne National Lab., Ill. (0440000)
AUTHOR: Bean, C. H.
C5201A4 PLD: 18J, 77I NSA3203
1975 9p
CONTRACT: W-31-109-Eng-38
MONITOR: 18

ABSTRACT: Federal regulations prepared by the Nuclear Regulatory Commission and published in the Federal Register require licensees to take appropriate action to protect the health and safety of the public from unauthorized use of special nuclear material (SNM), which includes plutonium, uranium-233, and highly enriched uranium. Crime countermeasures for compliance with these regulations are an important part of the guidance that is provided by the NRC's Office of Standards Development. The use of crime countermeasures and protective devices is intended to prevent the unauthorized diversion of material and to aid in the detection of diversion should it be attempted. Plant and equipment designs should incorporate both electronic and physical security measures for protection of SNM. This applies to facilities and equipment for reprocessing, fabrication, and transportation of SNM. The protection systems include physical barriers, access controls, intrusion detection devices, surveillance devices, central alarm stations, communications, and response capability. Acceptable security measures and devices applicable to protected areas, material access areas, vital areas, vital equipment, and transportation vehicles have been presented in Regulatory Guides.

DESCRIPTORS: (*Nuclear materials diversion, *Crime detection), ( *Fissionable materials, *Safeguards), Fuel fabrication plants, Fuel reprocessing plants, Monitoring, Nuclear fuels, Nuclear industry, Nuclear materials management, Radiation detectors, Reactors, Safeguard regulations, Transport

IDENTIFIERS: NTISERDA

CONF-750514-2 NTIS Prices: PC$4.00/MF$2.25

Proximity Detector and Alarm Utilizing Field Effect Transistors

Department of the Army Washington D C (1C9900)

Patent
AUTHOR: Healey, Gerald F., Nirschi, Joseph C.
C5162G3 FLD: 15C, 90F, 63G US&RDR7521
Filed 29 Aug 69, patented 15 May 73 4p
REPT NO: PAT-APPL-854 084, PATENT-3 733 597
MONITOR: 18
Government-owned invention available for licensing. Copy of patent available Commissioner of Patents, Washington, D.C. 20231 $0.50.

ABSTRACT: The patent describes a proximity detector and alarm in which an antenna is connected to the gate of a metal oxide semiconductor field effect transistor (MOSFET) which causes a silicon controlled switch (SCS) to trigger a blocking oscillator.

DESCRIPTORS: *Proximity devices, *Warning systems, *Patents, Personnel detectors, Intrusion detectors, Monitors, Field effect transistors, Antennas, Transients

IDENTIFIERS: PAT-CL-340-258-D, Metal oxide transistors, NTISGPA

AD-D000 931/6ST NTIS Price: Not available NTIS

A Mathematical Model for Predicting Microseismic Signals in Terrain Materials

Army Engineer Waterways Experiment Station Vicksburg Miss (038100)

Final rept.
AUTHOR: Lundien, Jerry R., Nikodem, Hans
C5011A4 FLD: 17J, 63I GRAI7519
Jun 73 225p
REPT NO: AEWES-IR-M-73-4
PROJECT: DA-1-T-162112-A-131
MONITOR: 18

ABSTRACT: The mathematical model presented herein allows the user to make predictions for the wave amplitude and frequency content of microseismic signals that would interact with a seismic intrusion detection device at the surface of the ground. These signals are propagated as a result of a force applied to the surface of a medium (stress) which in turn causes a corresponding motion to travel away from the source. Efforts were made to keep the operation of the model as general as possible such that little restriction is placed on either the source of the seismic signal or the ground media through which the signal propagates. As a result, the source signal is needed in the form of a time domain stress signal at the points of contact on the ground. The ground media can have any seismic profile that can be approximated by a layered viscoelastic structure. Examples are given of two sites to illustrate the variation in predicted signals due to multiple mode Rayleigh wave propagation, varying damping factors, varying ranges from the source, and input stress signal shapes.

DESCRIPTORS: *Terrain, *Microseisms, *Seismic detection, Intrusion detection, Seismic signatures, Mathematical models, Time domain, Antiintrusion devices, Computer programs, FORTRAN

IDENTIFIERS: FORTRAN 4 programming language, NTISDODA

AD-A012 632/6ST NTIS Prices: PC$7.25/MF$2.25

Hand-Held Metal Detectors for Use in Weapons Detection-Law Enforcement Standards Program

National Inst. of Law Enforcement and Criminal Justice, Washington, D.C.*Law Enforcement Assistance Administration, Washington, D.C.
C4853F3 FLD: 17F, 19F, 05D, 63D, 79G, 91C USGRDF7516
Oct 74 17p
REPT NO: NILE/CJ-STD-0602.00
MONITOR: 18
Paper copy also available from GPO as SN-2700-00285.

ABSTRACT: The law enforcement equipment standard was developed by the law Enforcement Standards Laboratory of the Department of Justice. Meeting the performance requirements presented in this document identifies equipment that is of superior quality and that is suited to the needs of law enforcement agencies. Purchasing agents can use the test methods described in this standard to determine firsthand whether a particular equipment item meets the requirements of the standard, or they may have the tests conducted on their behalf by a qualified testing laboratory. Law enforcement personnel may also reference this standard in purchase documents and require that any equipment offered for purchase meet its requirements. Furthermore, they may require that this compliance be either guaranteed by the vendor or attested to by an independent testing laboratory. The performance requirements and associated test methods cited include: controls; audible and visual alarm indication; detection, operability and electrical characteristics; battery condition and life; and interference and electrical safety.

DESCRIPTORS: *Magnetic detection, *Guns(Ordnance), Small arms, Warning systems, Standards, Requirements, Acceptability, Performance, Specifications, Law enforcement, Police, Calibrating

IDENTIFIERS: Gun control, Metal detectors, NTISJDLEAA

PB-242 015/6ST NTIS Prices: PC$3.25/MF$2.25

Power Line Alarm Transmission System. Phase I Report. Power System Characterization

GTE Sylvania, Inc., Mountain View, Calif. Electronic Systems Group-Western Div.*Department of the Air Force, Washington, D.C.*Law Enforcement Assistance Administration, Washington, D.C.*Aerospace Corporation, Los Angeles, Calif.
AUTHOR: Hardison, D. L., Duvall, K. M.
C4663G2 FLD: 13L, 15C, 05K, 94H, 91C USGRDR7513
Aug 73 216p*
GRANT: LEAA-NI-72-99-0027, F04701-72-C-0073
MONITOR: 18
See also PB-241 110. Prepared in cooperation with Aerospace Corporation, Los Angeles, Calif.

ABSTRACT: The study included that standard three-conductor romex cable has an impedance transforming capability dependent upon the cable length and the termination of the safety ground connector. Since romex is one of the most common types of residential wiring, this impedance transforming property must be dealt with in any analytical model to be developed for residential wiring systems. Researchers also found that the effect of the utility system on the residential wiring system is definite and distinctive, the presence of absence of loads on the wiring system has a definite effect on its impedance, and the principal source of noise is the utility system. They found that transmission system should be on the order of at least several volts in order to overcome anticipated signal attenuation and noise.

DESCRIPTORS: *Warning systems, *Transmission lines, Residential buildings, Power lines, Wiring, Electric cables, False alarms

IDENTIFIERS: *Burglar alarm systems, Instrusion detectors, NTISJDLEAA

PB-241 111/4ST NTIS Prices: PC$7.25/MF$2.25

Power Line Alarm Transmission System

GTE Sylvania, Inc., Mountain View, Calif. Electronic Systems Group-Western Div.*Law Enforcement Assistance Administration, Washington, D.C.

Final rept.
AUTHOR: Bell, R. F., Hardison, D. L., Pazemenas, V. V., Rowe, D. H.
C4663G1 PLD: 13L, 15C, 05K, 94H*, 91C* USGRDR7513
Jan 74 76p*
GRANT: LEAA-NI-71-99-0027, LEAA-J-IAA-035-2
MONITOR: 18
See also PB-241 111.

ABSTRACT: The report presents a discussion of system design considerations, design implementation, test plan, test results, system limitations and recommended operating procedures. Research reveals that the power line alarm transmission system in its present form represents a feasible concept. Certain weaknesses do exist, however, the main one being false alarm susceptibility to two sources. One of these sources includes certain types of broadcast receivers which use a transformerless power supply. False alarms were also induced in the system by the radio switching of a heavy heating element load. Researchers conclude that the transition of the system from its present status as a proven concept to an inexpensive high reliability residential alarm system will require both the engineering of a hardware development phase and full scale production engineering with a goal of maximizing the cost effectiveness of the system concept.

DESCRIPTORS: *Warning systems, *Transmission lines, Residential buildings, Power lines, Wiring, Electric cables, Security, False alarms

IDENTIFIERS: *Burglar alarm systems, Intrusion detectors, NTISJDLEAA

PB-241 110/6ST NTIS Prices: PC$4.75/MF$2.25

Vehicle Detection on Television: A Laboratory Experiment

Naval Weapons Center, China Lake, Calif. (403 019)

Technical publication
AUTHOR: Craig, George L.
C4503I1 FLD: 17H, 63F USGRDR7511
Apr 74 30p
REPT NO: NWC-TP-5636
PROJECT: A340-5313/261-B/1F12-524-401
MONITOR: 18
Distribution Limitation now Removed.

ABSTRACT: An experiment was conducted to measure the ability of observers to search for and detect vehicular targets in a real-world scene displayed on a TV monitor. Search time was limited to 3 seconds; the variables investigated were (1) angular subtense of the display and target, (2) the number of TV scan lines making up the target, and (3) the target-background contrast. The angular subtense of the display and target significantly affected performance; it was found that the display should subtend at least 8 and preferably 10 degrees to the observer. Larger displays yielded little improvement in performance. The number of TV scan lines making up the target did not significantly affect performance; the lowest number used in the tests (seven) was sufficient, and increasing the number did not improve performance. Target location in the scene significantly affected performance; targets located in the bottom of the scene were easier to detect. Because of the oblique view, the targets in the bottom were larger and there was less terrain/foliage clutter.

DESCRIPTORS: *Target detection, *Television display systems, *Optical detection, Vehicles, Optical images, Line scanning, Sizes(Dimensions), Visual perception, Contrast, Performance(Human), Personnel

IDENTIFIERS: NTISDODN

AD-919 898/7ST NTIS Prices: PC$3.75/MF$2.25

Mercury Switches for Burglar Alarm Systems: Law Enforcement Standards Program

National Inst. of Law Enforcement and Criminal Justice, Washington, D.C.
C4384F2 FLD: 05K, 09A, 63F, 49C, 91C* USGRDF7509
9 Dec 74 20p*
REPT NO: NILE/CJ-STD-0303.00.
MONITOR: 18

ABSTRACT: Performance criteria are given for mercury switches intended for use in protective intrusion alarm circuits to monitor the position of doors, windows, etc. Mercury switches for Burglar Alarm Systems is one of a series of law enforcement equipment standards developed by the Law Enforcement Standards Laboratory at the National Bureau of Standards and issued by the National Institute of Law Enforcement and Criminal Justice. These devices cause the initiation of an alarm signal to a police panels, central station, or local audible alarm device. The report concludes that in order to minimize false alarms from mercury switches used in burglar alarms systems, the following factors must be controlled: component material, configuration, actuation angle, deactuation angle, endurance, temperature extremes, corrosion, shock, vibration, dielectric strength, and rain, and dust. Use of this system in procurement of mercury switches for burglar alarm systems will ensure the switches will have a low probability of generating false alarms in most locations where such devices are used.

DESCRIPTORS: *Electric switches, *Warning systems, Mercury, Standards, Security

IDENTIFIERS: *Burgular alarm systems, Intrusion detectors, NTISJDLEAA

PB-238 790/0ST NTIS Prices: PC$2.55/MF$2.25

Seismic Detection. Part 1. General Studies (A Bibliography with Abstracts)

National Technical Information Service, Springfield, Va.

Rept. for 1965-Oct 74
AUTHOR: Habercom, Guy E. Jr
C4303B2 FLD: 17J, 08I, 48F*, 63I, 86W USGRDR7508
Feb 75 87p*
MONITOR: 18
See also Part 2, Volume 1, NTIS/PS-75/327.

ABSTRACT: General applications of seismic detection and seismic arrays are investigated in these 82 abstracted Government-sponsored research reports. For seismic detection of nuclear events see Part 2. The topics include equipment and applications which not only include earthquake detection but also microseismic detection of people and motor vehicles.

DESCRIPTORS: *Seismic detection, *Bibliographies, Ground based detectors, Seismic waves, Personnel detection, Microseisms, Vehicle detection, Seismic arrays, Abstracts

IDENTIFIERS: NTISNTIS

NTIS/PS-75/326/9ST NTIS Prices: PC$25.00/MF$25.00

Feasibility Study for a Dual Field of View-Single Detector Array Infrared System

Kaiser Aerospace and Electronics Corp Palo Alto Calif*Army Electronics Command, Fort Belvoir, Va. Night Vision Lab. (405022)

Final rept.
C4284K4 FLD: 17E, 20F, 46*, 63C USGRDR7508
Jun 74 91p
CONTRACT: DAAK02-72-C-0419
MONITOR: 18

ABSTRACT: An analytical study was conducted to determine the feasibility of multiplexing two infrared images, gathered by two separate lens systems, at a coincident focal plane thereby permitting utilization of only one infrared detector array for 'time shared' processing of both images. The study was primarily directed towards determining the feasibility and practicality of, dual image opto-mechanical scanning techniques, and retaining flicker-free video presentations by storing and processing the multiplexed IR video. The results of the study show that the concept is feasible and that hardware can be implemented by using state-of-the-art techniques. The investigation into scanning techniques and data storage media indicates that the most suitable hardware implementation would consist of a 'Collimated Dual Galvanometer' Optical Scanner and a Storage Refresh Memory using MOS Shift Registers.

DESCRIPTORS: *Infrared detection, *Multiplexing, Aircraft equipment, Infrared images, Optical scanning, Display systems, Video signals, Signal processing, Galvanometers, Metal oxide semiconductors, Feasibility studies, Arrays

IDENTIFIERS: NTISDODA

AD/A-005 658/0ST NTIS Prices: PC$4.75/MF$2.25

A Program to Develop Audio Aids to Night Vision

Zenith Radio Corp Chicago Ill*Army Engineer Research and Development Labs., Fort Belvoir, Va. (383850)

Final technical rept. 1 Jul 63-30 Jun 64
AUTHOR: Fein, Michael, Markin, Joseph
C4144H2 FLD: 17A, 17J, 15G, 63A, 74I USGRDR7506
30 Jun 64 89p
REPT NO: ZRC-65-438
CONTRACT: DA-44-009-AMC-305(T)
MONITOR: 18

ABSTRACT: The purpose of this program was to obtain information on utilization of acoustical phenomena for target location, recognition and identification by suitable devices which in turn may be used as aids for more effective use of night viewing devices. Considerable attention was paid to finding techniques which made sounds more intelligible; the human auditory analytic apparatus was to be supplemented, not replaced. A combination of suitable ground-coupled infrasound pickups and an infrasonic-to-audio converter enabled a listener to detect the sound of footsteps at a range of 200 yards or more, about four times what he could do with his unaided ears. With a crude ground-coupled binaural listening system, an impact signal could be located to about plus or minus 15 degrees. Air coupled listening systems were tested that gave ranges of about 40 yards for footsteps and 190 yards for intelligibility of a man's voice, each about a twofold improvement over the unaided ear.

DESCRIPTORS: *Acoustic detection, *Audiovisual aids, *Seismic detection, Acoustic detectors, Intrusion detection, Intrusion detectors, Night vision devices, Utilization, Personnel detection, Personnel detectors, Infrasonics, Portable equipment, Coupling(Interaction), Air, Seismometers

IDENTIFIERS: NTISDODA

AD/A-004 106/1ST NTIS Prices: PC$4.75/MF$2.25

Project Plans, Fiscal Year 1974: Law Enforcement Standards Laboratory

National Bureau of Standards, Washington, D.C. Law Enforcement Standards Lab.* National Inst. of Law Enforcement and Criminal Justice, Washington, D.C.

Final rept.
AUTHOR: Diamond, Jacob J.
C3612J2 FLD: 05D, 91C, 86V USGRDR7424
Jul 73 73p
REPT NO: NBSIR-74-529
PROJECT: NBS-4009380
MONITOR: 18
Sponsored in part by National Inst. of Law Enforcement and Criminal Justice, Washington, D.C.

ABSTRACT: Plans are presented for nineteen law enforcement projects approved and funded for FY-74. They include plans for the preparation of performance standards, user guidelines, and reports on enforcement equipment in the communications, security, protective equipment, and clothing areas.

DESCRIPTORS: *Law enforcement, *Federal programs, *Project planning, Performance standards, User needs, Communications management, Security systems, Protective clothing, Criminal investigations, Detectors, Emergency preparedness, Lighting equipment, Sirens, Body armor, Warning systems

IDENTIFIERS: Forensic science, NTISCOMNBS

COM-74-11495/0SL NTIS Prices: PC$4.25/MF$2.25

Detection of Human Intruders by Low Frequency Sonic Interferometric Techniques

National Bureau of Standards, Boulder, Colo. Electromagnetics Div. ( 390 891)

Final rept.
AUTHOR: Stoltenberg, Robert E.
C3195A1 FLD: 17A, 5K, 91C*, 63A, 86V USGRDR7418
May 74 99p*
REPT NO: NBSIR-74-364
PROJECT: NBS-2728455
MONITOR: 18

ABSTRACT: The report examines the theory and evaluates the results of over 200 tests of the use of low frequency sonic interference techniques for the detection of a human intruder in a confined area. The conclusions are that this technique is potentially a significant improvement over conventional methods with regard to area coverage and minimum velocity detection. This work examined the intruder signature and background noise with respect to sonification frequency, source levels, intruder size, intruder velocity, source types, area coverage (to 692 sq. meters), and geometric position of the source and receiver in four radically different areas. Interference effects of the intruder signature and noise were analyzed with respect to bandwidth, spectral content, and magnitude by both computer drawn spectral displays, and specific frequency correlators.

DESCRIPTORS: *Urban areas, *Warning systems, *Personnel detection, *Interferometers, Acoustics, Low frequencies, Spectrum signatures, Acoustic detectors, Computer aided evaluation

IDENTIFIERS: NTISCOMNBS

COM-74-11208/7 NTIS Prices: PC$4.00/MF$1.45

Design and Development of the Combination Classifier Pre-Processor (CCP)

Honeywell Inc Hopkins Minn Government and Aeronautical Products Div (406490)

Final rept.
AUTHOR: Wold, Leigh R.
C3114C4 FLD: 15C, 17J, 17A, 17F, 63I, 63A, 63D, 74I USGRDR7417
Feb 74 87p
CONTRACT: DAAK02-73-C-0465
MONITOR: 18

ABSTRACT: Five advanced development models of a Combination Classifier Pre-processor (CCP) were designed, fabricated, tested and delivered. Each includes a seismic, an acoustic, and a magnetic transducer. The units are self-contained, with batteries for 2-3 months operation, and provide analog output signatures at separate pins of a single interface connector. (Author)

DESCRIPTORS: *Intrusion detectors, *Personnel detection, Detectors, Multiple operation, Intrusion detection, Transducers, Seismometers, Magnetic detectors, Acoustic detectors, Signal processing, Preprocessing, Security, Trade off analyses, Portable equipment, Electrets, Microphones, Magnetometers

IDENTIFIERS: NTISDODA

AD-780 925/4 NTIS Prices: PCS4.00/MF$1.45

Concerning Visual Detection of Moving Personnel Targets

Naval Postgraduate School Monterey Calif (251450)

Master's thesis
AUTHOR: Selvitelle, Michael
C3114S4 FLD: 5J, 17H, 57R, 74 USGRDR7417
Mar 74 78p
MONITOR: 18

ABSTRACT: The detection of moving personnel targets by individual soldiers is a complex process. The thesis examines variables that affect the acquisition process and how these variables are currently being modeled for analysis. A well-controlled experiment is analyzed to assist in establishing guidelines for future research in this area. The guidelines establish field experiment procedures, as well as the available probability distributions associated with target detection processes. (Modified author abstract)

DESCRIPTORS: *Personnel detection, *Visual perception, *Target recognition, Moving targets, Military requirements, Test methods, Performance(Human), Target acquisition, Models, Standards, Military research, Probability, Environments, Theses

IDENTIFIERS: NTISDODN

AD-780 933/8 NTIS Prices: PC$7.00/MF$1.45

Residential Security

Urban Systems Research and Engineering, Inc., Cambridge, Mass. (407 601)
AUTHOR: Sagalyn, Arnold, Emrich, Robert L., Hassan, Aneece, Labovitz, John R., Labovitz, Peter C.
C30 12A1 FLD: 5K, 91C* USGRDR7415
Dec 73 119p*
GRANT: LEAA-NI-71-026-C2
MONITOR: 18
Paper copy available from GPO $1.60 as Stock no. 2700-00235.

ABSTRACT: The report is an assessment of alternative approaches to crime prevention in residential settings, paying particular attention to the problem of burglary. It provides a framework for evaluating security measures and identifies some of their policy implications for government. A major premise is that the crime risk to a given residence is a function of crime pressure and vulnerability. Therefore residential security is contextual and the risk of crime to an area may be lessened by reducing crime pressure and the vulnerability of the residence. Part one of the report examines the cost effectiveness of security measures. Part two considers physical security measures and design principles including an overview of various types of security hardware available for the residential market, or with some application to the residential setting. The next section discusses private group action in combating residential crime. Concluding chapters deal with public policy issues concerning residential security.

DESCRIPTORS: *Crime prevention, *Residential buildings, *Security, Methodology, Systems analysis, Benefit cost analysis, Public relations, Citizen participation, Telecommunication, Policies, Planning, Locks(Fasteners), Lighting equipment, Doors, Warning systems, Detectors, Recommendations

IDENTIFIERS: *Burglaries, Vulnerability, NTISLEAA

PB-232 086/9 NTIS Prices: PC-GPO/MF$1.45-NTIS

Seismic Propagation Mapping of Tropic Sensor Test Grids

Army Tropic Test Center Apo New York 09827 (042290)

Final rept. 4 Nov-5 Dec 71
AUTHOR: Marcuson, W. F. III, Leach, R. E.
C2991G4 FLD: 15C, 17J, 74I, 63G USGRDR7415
Nov 72 134p
REPT NO: USATTC-7302001
PROJECT: USATECOM-9-CO-009-000-007, USATECOM-9-CO-009-000-008
MONITOR: 18
Prepared in cooperation with Army Engineers Waterways Experiment Station, Vicksburg, Miss.
Availability: Available in microfiche only.

ABSTRACT: Field data were collected in the final part of a two-part study to establish seismic response characteristics, their distribution, and the environmental factors that influence them. Data were collected in two United States Army Tropic Test Center seismic sensor test areas (Gamboa and Alpha) in the Panama Canal Zone during the 1971 wet season. Detailed seismic and environmental data are presented, and special seismic response tests (drop-hammer, man-walking, vegetation effects, reproducibility and ambient-noise) conducted in various environmental conditions at 24 sites in the Gamboa test area and 11 sites in the Alpha test area are described. Also included are results of a multicorrelation analysis used to relate the seismic response descriptors-peak particle velocity (PPV), peak summed particle velocity (PSPV), and sum-frequency (t)--to the environmental measures. (Modified author abstract)

DESCRIPTORS: *Passive defense, *Antiintrusion devices, *Seismic detection, *Personnel detection, Enemy personnel, Intrusion detection, Response, Seasonal variations, Climate, Tropical tests, Surveillance, Panama Canal

IDENTIFIERS: NTISA

AD-779 321/4 NTIS Prices: MF$1.45

Combating Felonious Crimes by Citizen Involvement: Evaluation

INTASA, Menlo Park, Calif. (406 193)

Final rept.
C2881J3 FLD: 5K, 91C USGRDR7413
Sep 72 98p
REPT NO: IRP-71-01
GRANT: LEAA-72-NI-09-0001
MONITOR: 18
Prepared in cooperation with San Jose Police Dept., Calif.

ABSTRACT: Evaluation is presented of a 1971 San Jose project to reduce the incidence of burglary, robbery, auto theft, and rape, and to involve citizens in preventing and reporting crimes. The general conclusion of the evaluator was that there is no statistical evidence that the overall objectives of reducing the incidence of residential burglary, commercial robbery, rape, and auto theft were achieved, perhaps because the program was too limited in scope. It is felt that the only intermediate objectives achieved were improving the quality of reporting and increasing citizen intervention. Both of these results apply only to residential burglary. The San Jose Police Department officers suggested a robbery reduction with more hard prevention and reporting devices such as cameras and alarms. It was felt that increased manpower, and multi-activity anti-crime programs involving both the police and the community were essential for combating crime.

DESCRIPTORS: *Criminology, *Crimes, Prevention, Police, Community relations, California, Project management, Warning devices

IDENTIFIERS: San Jose(California), Rape, Robberies, Burglaries, Theft, LEAA

PB-231 595/0 NTIS Prices: PC$8.00/MF$1.45

Feasibility Study for an Underwater Detection System

Antenna Research Associates Inc Beltsville Md (390223)

Final rept.
AUTHOR: Masters, R. Wayne
C2854B3 FLD: 17F, 15C, 63H, 74I USGRDR7413
Apr 74 78p
CONTRACT: DAAD05-72-C-0199
PROJECT: LWL-07-P-71
MONITOR: LWL-CR-07P71A

ABSTRACT: The report describes the design and test of a feasibility model of an electromagnetic swimmer detector. Operating at a frequency of 400 KH sub z, this system responded to conductivity changes caused by the presence of a swimmer near three 14 feet dipole antennas. The antenna array was deployed in an area of 140 square feet underwater. Swimmers were detected at ranges up to seven feet above the antenna array. Underwater path loss and antenna impedance measurements are reported. (Author)

DESCRIPTORS: *Personnel detectors, Swimmers, Electromagnetic radiation , Detection, Feasibility studies, Antenna arrays, Underwater, Short range(Distance), Electrical impedance, Antennas, Loss, Propagation

IDENTIFIERS: A

AD-778 157/8 NTIS Prices: PC$4.00/MF$1.45

NILECJ Standard for Magnetic Switches for Burglar Alarm Systems. Law Enforcement Standards Program

National Inst. of Law Enforcement and Criminal Justice, Washington, D.C.
C2821L4 FLD: 13L, 5K, 92C, 94H, 91C USGRDR7412
1973 26p
REPT NO: NILE/CJ-STD-0301.00
MONITOR: 18
Paper copy available from GPO $0.65 as stock no. SN-2700-00238.

ABSTRACT: This technical publication describes test methods and establishes performance criteria for magnetically actuated electrical switches intended for use in protective intrusion alarm circuits to monitor the position or doors, windows, etc. The switches initiate a signal to cause auxiliary equipment to send an alarm to a police panel, central station, or a local audible alarm device. Switches covered are classified into four types based on their intended operating environment and tamper resistant features. The performance characteristics selected are those that affect the false alarm susceptibility of the device.

DESCRIPTORS: *Warning systems, *Electric switches, Crimes, Standards, Tests

IDENTIFIERS: *Burglar alarm systems, Intrusion detectors, LEAA

PB-231 323/7 NTIS Prices: PC-GPO/MF$1.45-NTIS

Imaging Crowd Surveillance System

Texas Instruments, Inc., Dallas. Equipment Group. (405 076)

Final technical rept.
AUTHOR: Colegrove, Forrest D., Robinson, James E., Kinch, Michael A., Boyd, David R., Hickman, Jack K.
C2771B4 FLD: 17E, 17H, 15C, 63C, 63F USGRDR7412
May 73 109p
REPT NO: TI-UI-840150-F
CONTRACT: DAAK02-71-C-0429
MONITOR: 18
Distribution Limitation now Removed.

ABSTRACT: An instrument to test the feasibility of imaging weapons concealed in a person's clothing has been developed. A simple object-plane scanner, which records images on film, has been used with two sensors. The gallium arsenide photodetector has peak response at a wavelength of 0.285 mm and the indium antimonide free electron bolometer responds at wavelengths near 0.75 mm. The performance of this instrument is analyzed and potential improvements are suggested. The imagery obtained with the two sensors is compared. (Author)

DESCRIPTORS: *Ordnance locators, *Sensors, *Pistols, *Detectors, *Infrared detectors, *Submillimeter waves, Passive, Infrared scanning, Textiles, Infrared images, Mirrors, Real time, Light transmission, Photoelectric materials, Preamplifiers, Clothing, Spectra(Infrared), Design, Indium antimonides, Gallium arsenides, Bolometers, Infrared filters, Electrons, Modulation, Transfer functions

IDENTIFIERS: *Concealed weapons, *Crowd surveillance, A

AD-911 378/8 NTIS Prices: PC$8.50/MF$1.45

Detection of Human Targets

Human Resources Research Organization Alexandria Va (405260)

Technical rept.
AUTHOR: Caviness, James A., Maxey, Jeffrey L.
C2662C1 FLD: 5J, 92B USGRDR7411
Feb 74 52p
REPT NO: HumRRO-TR-74-4
CONTRACT: DAHC19-73-C-0004
PROJECT: DA-2-Q-062107-A-745
TASK: 2-Q-062107-A-74500
MONITOR: 18

ABSTRACT: A study of detection performance by infantrymen for human targets under optimal lightining and line-of-sight conditions was conducted to obtain data for the Army Small Arms Requirements Study (ASARS). Four classes of variables were studied: target, environmental, organismic, and experimental. Results indicated that illumination intensity, target lighting, target size, target speed, target contrast with environment, terrain, observer height, observer movement, and observer experience are important determinants of detection. Results demonstrated a need to further examine the interactions among these determinants when some or all of them are varied at one time. (Author)

DESCRIPTORS: *Performance(Human), *Target detection, Infantry, Army personnel, Small arms, Targets, Motion, Illumination, Sizes(Dimensions), Terrain

IDENTIFIERS: A

AD-776 381/6 NTIS Prices: PC$3.75/MF$1.45

Development of a P/M Line Sensor

Honeywell Inc Hopkins Minn (170170)

Final rept. 3 Dec 71-18 Dec 72
AUTHOR: Wilson, Larry E., Ravis, James C.
C2285A1 FLD: 15C, 17F, 63G, 74I USGRDR7406
Jun 73 93p
CONTRACT: F30602-72-C-0040
MONITOR: RADC-TR-73-165

ABSTRACT: The report describes advanced development of a plated wire line sensor. The sensor consists of a transducer (50-meter length), a battery pack, sensor electronics, and an interconnect cable to link the battery pack with the sensor electronics. One transducer has been evaluated in a field situation with good results for the stage of development. Five models were constructed and delivered for Air Force evaluation. (Author)

DESCRIPTORS: *Intrusion detectors, *Personnel detectors, Buried objects, Wire, Transducers, Pressure, Magnetic detectors

IDENTIFIERS: AF

AD-773 136/7 NTIS Prices: PC$4.50/MF$1.45

Simulated Computer Assistance in a Signal-Detection Task. (Its Effectiveness as a Function of Signal Probabilities, Cueing Time and Knowledge of Results

Royal Naval Personnel Research Committee London (England) (31'350)
AUTHOR: Ingleby, J. D., Hamilton, P., Copeman, A. K.
C2201D2 FLD: 5J USGRDR7405
Mar 71 21p
REPT NO: OES-4/72
MONITOR: DRIC-BR-37471
Report for the Operational Efficiency Subcommittee.

ABSTRACT: The second report in a series dealing with the detection of sound signals with computer aid covers experiments in which the signal occurrence probability was reduced from 0.5 to 0.1. Such probability is stated as still much greater than the probability of a signal during naval operations. Operator performance is discussed for several test conditions.

DESCRIPTORS: *Acoustic signals, *Detection, *Computer applications, Auditory acuity, Probability, Performance(Human), Test methods, Cues(Stimuli), Analysis of variance, Simulation, Naval research, Great Britain

IDENTIFIERS: *Computer aided detection, SD

AD-771 948/7 NTIS Prices: PC$3.25/MF$1.45

Passive Portal Detector

Honeywell Inc Hopkins Minn Government and Aeronautical Products Div (406490)

Final technical rept.
AUTHOR: Smith, James W.
C2031F3 FLD: 17F, 63D USGRDR7402
Nov 73 61p
REPT NO: GAPD-2731-8084
CONTRACT: DAAK02-72-C-0207
MONITOR: 18

ABSTRACT: Honeywell designed a Passive Portal Detector and built two systems, including two frames for outdoor sensor mounting. The Passive Portal Detector is used to sense the passage of a metallic (magnetic) weapon through a sensor-equipped portal. It signifies detection by illumination of an indicator lamp and by a relay closure, used for an audible or remote alarm. The output indicator has a minimum energized time of approximately one-half second. Sensor panels, providing magnetic sensor coils with vertical and horizontal polarization, are mounted on each side of a portal. Disturbances in the earth's magnetic field caused by a magnetic object passing through the portal cause induced voltages in the sensor coils. The signals are amplified by solid-state electronics to a level which can be compared with a reference voltage. When the threshold level is exceeded, alarm circuitry is activated. (Author)

DESCRIPTORS: *Magnetic detectors, *Weapons, Schematic diagrams, Small arms

IDENTIFIERS: Design, SIMPOL/309 computer program, A

AD-770 537/9 NTIS Prices: PC$3.50/MF$1.45

Seismic System for Real-Time Reporting

Office of the Secretary of the Army Washington D C (403499)

Patent
AUTHOR: Hirschberg, Kenneth A.
C1682B1 FLD: 17J, 15G, 63I, 74H, 90 USGRDR7322
Filed 21 Oct 69, patented 17 Oct 72 6p
RLPT NO: PAT-APPL-868 142, PATENT-3 699 509
MONITOR: 18
Government-owned invention available for licensing. Copy of patent available Commissioner of Patents, Washington, D.C. 20231 $0.50.

ABSTRACT: The invention relates to seismic systems for remote monitoring of roads and trails in order to determine the volume and direction of traffic thereon. Accordingly, an object of the invention is apparatus for detecting movement of troops or equipment which may occur at either one or two-spaced locations along a path and the direction of such movement if it passes between the spaced locations.

DESCRIPTORS: (*Seismometers, *Patents), (*Warning systems, Detectors), Seismic waves, Sensors, Electronic equipment, Radio transmission, Real time, Wiring diagrams

IDENTIFIERS: PAT-CL-340-15, Seismic detection, Personnel detection, GPA

AD-163 852/7 NTIS Price: Not available NTIS

Program Plan for Fiscal Year 1973

Law Enforcement Assistance Administration, Washington, D.C.
C1664B3 FLD: 5K, 91C USGRD87321
1972 41p
MONITOR: 18

ABSTRACT: The purpose and structure of the National Institute of Law Enforcement and Criminal Justice (NILE and CJ) are described along with those of its parent organization, the Law Enforcement Assistance Administration. The institute's goals of reducing crime and improving the quality of justice are being addressed through four major program areas: Alleviating conditions which promote crime; intervening in criminal careers; reducing opportunities for crime; and increasing the risk in crime. NILE and CJ's long range plan is explained and delineated with charts, specifically focusing on the priorities for fiscal year 1973.

DESCRIPTORS: (*Law enforcement, Planning), (*Criminal law, Projects), Detection, Identification systems, Narcotics

IDENTIFIERS: LEAA

PB-223 593/5 NTIS Prices: PC$4.25/MF$1.45

Digital Signal Analyzer

Southwest Research Inst San Antonio Tex (328200)

Final rept.
AUTHOR: Sturdivant, Vernon R.
C1613G4 FLD: 19A, 79A USGRDR7321
23 Jul 73 62p
CONTRACT: DAAK02-72-C-0126
PROJECT: SwRI-14-3256
MONITOR: 18

ABSTRACT: The automatic Portal Detector System (PDS-5) was constructed in order to evaluate the desirability of introducing a general purpose digital computer into a metal detector for weapons detection. The possible benefits to be derived by the use of a computer are improved target detection through more sophisticated signal processing. The cost of the computer can be shared by a number of systems operating in the same vicinity. (Author)

DESCRIPTORS: (*Mine detectors, Digital computers), Data processing systems, Computer programs, Detectors, Weapons, Metals, Warning systems

IDENTIFIERS: *Automatic portal detector systems, *Signal processing, A

AD-766 761/1 NTIS Prices: PC$3.50/MF$1.45

Proceedings of the International Electronic Crime Countermeasures Conference(1st) at Edinburgh, Scotland on 18-20 July 1973

Kentucky Univ., Lexington. Coll. of Engineering. (402 333)

Annual rept.
C1424B4 FLD: 5K, 9C, 91C*, 63 USGRDR7318
Jul 73 257p*
REPT NO: UKY-BU103
MONITOR: 18

ABSTRACT: The report contains a collection of papers on recent developments in the field of electrical engineering for application by law enforcement agencies. A forum was held for the dissemination of information and exchange of ideas to stimulate the individual, and provide a basis for long-range support and assistance of law enforcement agencies in the use of available technologies. Session topics include: Alarm systems, detection devices and systems, command control and communications, police systems, authentication systems, advanced countermeasures techniques, and identification.

DESCRIPTORS: (*Criminology, *Electric equipment), (*Law enforcemet, Meetings), Computer programming, Radio communication, Acoustic detectors, Cadavers, Infrared detection, Industrial psychology, Command and control, Reporting, Vehicular traffic control, Programmed instruction, Countermeasures, Night vision, Speech scrambling, Image intensifiers, Pattern recognition, Microfilm

IDENTIFIERS: Metal detectors, Cadaver detectors, Interferometric holography, Fingerprints, Weapon detection, Eavesdropping devices, Intrusion deterrence, Thermal viewers, Burglary investigations, Credit card fraud, Antihijacking systems, UKCE

PB-222 139/9 NTIS Prices: PC$6.75/MF$1.45

Proceedings of the Conference on the Design of Experiments in Army Research Development and Testing (17th). Part 1. Held at Walter Reed Army Inst. of Research on 27-29 October 1971

Army Research Office Durham N C (C40900)
C1163D3 FLD: 5B USGRDR7315
Sep 72 520p
REPT NO: AROD-72-2-Pt-1
MONITOR: 18
See also Part 2, AD-762 117.

ABSTRACT: Approximately 23 papers presented at the conference are included in part 1.

DESCRIPTORS: (*Army research, *Symposia), Medical research, Psychophysiology, Radiobiology, Mathematical analysis, Mathematical models, Nuclear explosions, Weapons, Detection, Experimental design

IDENTIFIERS: A

AD-762 138 NTIS Prices: PC$6.00/MF$0.95

Proceedings of the Conference on the Design of Experiments in Army Research Development and Testing. (17th). Part 2. Held at Walter Reed Army Inst. of Research on 27-29 October 1971

Army Research Office Durham N C (040900)
C1162K2 FLD: 5B USGRDR7315
Sep 72 512p
REPT NO: AROD-72-2-Pt-2
MONITOR: 18
See also Part 1, AD-762 138 and report dated Aug 71, AD-738 532.

ABSTRACT: Approximately 18 papers presented at the conference are included in part 2.

DESCRIPTORS: (*Army research, *Symposia), Medical research, Mathematical analysis, Machine guns, Detection, Experimental design

IDENTIFIERS: A

AD-762 117 NTIS Prices: PC$6.00/MF$0.95

Proceedings of the 1973 Carnahan Conference on Electronic Crime Countermeasures, April 25-27, 1973

Kentucky Univ., Lexington. Coll. of Engineering. (462 333)
C1025J4 FLD: 5K, 17D, 91C*, 63B, 66 USGRDR7313
Apr 73 184p
REPT NO: UKY-BU102
MONITOR: 18
Prepared in cooperation with Institute of Electrical and Electronics Engineers, IEEE rept. no. 73-CHO-756-7-AES. See also report dated Apr 71, PB-198 324.

ABSTRACT: A collection of papers directed toward presenting recent developments in the field of electrical engineering for application by law enforcement agencies is presented. Session topics include crime identification, detection and alarm systems, criminal surveillance, police and security management systems, and communications.

DESCRIPTORS: (*Criminal investigations, Electronic equipment), (*Law enforcement, Proceedings), (*Electronic countermeasures, Law enforcement), Detectors, Warning systems, Speech, Identification systems, Visual surveillance, Radio equipment, Criminology, Electronic security, Secure communication

IDENTIFIERS: Speech synthesizers, *Motion sensors, *Intrusion detectors, Weapon detectors, Baggage detectors(Airlines), UKCE

PB-220 223/2 NTIS Prices: PC$6.00/MF$0.95

Exploratory Design, Engineering and Operational Development of a Pilot Model Lead Detection System

IIT Research Inst., Chicago, Ill. (175 350)

Final rept. 18 Mar 71-18 Mar 72
AUTHOR: Baker, Samuel I., Moler, Robert B.
C1022A4 FLD: 14B, 5D, 91C* USGRDR7313
Jun 72 108p*
CONTRACT: LEAA-NI-71-040
MONITOR: LEAA-NI-71-040

ABSTRACT: The purpose of the project was to develop a pilot model lead detection system based on the production and detection of characteristic X-rays from lead contained in concealed weapons, primarily hand guns. Sufficient detail has been included in this report to permit the manufacture of a lead detection system based on a Cadmium-109 radioactive source and a Ge(Li) X-ray detector which can detect lead in one minute or less in most hand guns concealed on a person at a distance of eight inches. Procedures are given for putting the system into operation initially and for testing the system for proper operation in the field. (Author Modified Abstract)

DESCRIPTORS: (*Guns(Ordinance), *Warning systems), (*Lead(Metal), Detectors), Small arms ammunition, X-ray analysis, Radiation measuring instruments, Gamma rays, Design, Detectors, Solid state counters

IDENTIFIERS: Cadmium 109, Germanium(Li) detectors, LEAA

PB-219 646/7 NTIS Prices: PC$5.45/MF$0.95

Trace Metal Detection Technique in Law Enforcement

Law Enforcement Assistance Administration, Washington, D.C. National Inst. of Law Enforcement and Criminal Justice.
C0573I3 FLD: 14B USGRDR7308
Oct 70 21p
MONITOR: LEAA-NI-PR-71-1
Paper copy available from GPO $0.20, as stock no. J1.36:71-1.

ABSTRACT: A trace metal detection technique (TMDT) has been developed, to determine whether a suspect or nonmetallic material has been in contact with metal objects. The method uses a test solution to treat skin, clothing or other material which produces visible metal trace patterns when the treated area is subjected to ultraviolet light. The metal trace patterns give-off fluorescent colors that are unique to types of metals. The location size and shape of the metal traces are compared to cataloged signatures to identify specific objects. The identification may be as specific as type, make, model and caliber of a weapon. Interpretation of test results may be influenced by contact with nonsignificant metal objects, disassembly or assembly of a handgun, false positives by similar but not identical traces and exposure of hands to soap and water. Equipment test procedures, and photographic techniques are described. (Author)

DESCRIPTORS: (*Criminal investigations, *Ultraviolet equipment), Metals, Pistols, Guns(Ordinance), Fluorescence, Photographic techniques

IDENTIFIERS: *Forensic chemistry, *Trace metal detection technique

PB-214 749/4 NTIS Prices: PC-GPO/MF$0.95-NTIS

An Evaluation of Small Business and Residential Alarm Systems. Volume II. Appendices

GTE Sylvania, Inc., Mountain View, Calif. Security Systems Dept.
AUTHOR: Chleboun, T. B., Duvall, K. M.
C0491B4 FLD: 5D, 13L, 91C, 66 USGRDR73C7
Jun 72 149p*
REPT NO: M-1442-Vol-2
GRANT: LEAA-NI-71-061
MONITOR: 18
See also Volume 1, PB-214 795.

ABSTRACT: The report presents the appendices to 'An Evaluation of Small Business and Residential Alarm Systems.' Included are surveys of the San Francisco, San Jose, and Santa Clara Police Departments as a function of user category, the cover letter and questionnaire for central alarm stations and the user/non-user survey questionnaire. The full report contained in volume I assesses the role of alarm systems in reducing burglary, robbery and related crimes and develops cost-effective alarm systems with minimum false alarm and failure rates. Presented is a survey of the state-of-the-art of alarm systems and the results of a feasibility study of rentable alarm systems for use by small businesses and residences. (Author)

DESCRIPTORS: (*Industries, Protectors), (*Residential buildings, Protectors), (*Law enforcement, *Warning systems), Security, Personnel detection, Reviews, False alarms, Threat evaluation, Design criteria, Cost analysis, System analysis, Statistical data

IDENTIFIERS: Burglary, *Crime prevention

PB-214 796/5 NTIS Prices: PC$5.45/MF$0.95

An Evaluation of Small Business and Residential Alarm Systems. Volume I

GTE Sylvania, Inc., Mountain View, Calif. Security Systems Dept.
AUTHOR: Chleboun, T. B., Duvall, K. M.
C0491B3 FLD: 5D, 13L, 91C, 66 USGRDR7307
Jun 72 331p*
REPT NO: M-1442-Vol-1
GRANT: LEAA-NI-71-061
MONITOR: 18
See also Volume 2, PB-214 796.

ABSTRACT: The report assesses the role of alarm systems in reducing burglary, robbery, and related crimes and develops cost-effective alarm systems with minimum false alarm and failure rates. The scope of the work includes a survey of the state-of-the-art of alarm systems and a feasibility study of rentable alarm systems for use by small businesses and residences. The research involves an examination of performance, reliability, design and deployment of alarm systems. The study concludes that alarm systems can serve as potent tools for the reduction of crime against residences and small businesses. It further provides recommendations for future research efforts. (Author)

DESCRIPTORS: (*Industries, Protectors), (*Residential buildings, Protectors), (*Law enforcement, *Warning systems), Security, Personnel detection, Reviews, False alarms, Threat evaluation, Design criteria, Cost analysis, Systems analysis, Statistical data

IDENTIFIERS: Burglary, *Crime prevention

PB-214 795/7 NTIS Prices: PC$9.00/MF$0.95

A Microwave Technique for Detecting and Locating Concealed Weapons

Transportation Systems Center, Cambridge, Mass. (407 082)

Final rept. Mar-Sep 71
AUTHOR: Weigand, R. M.
C0125J3 FLD: 17I, 1E, 85A, 85D, 63H USGRDR7302
Dec 71 51p*
REPT NO: DOT-TSC-OST-72-16
MONITOR: 18

ABSTRACT: The subject of this report is the evaluation of a microwave technique for detecting and locating weapons concealed under clothing. The principal features of this technique are: persons subjected to search are not exposed to 'objectional' microwave radiation; a simple threshold detector can be used as the decision element obviating complex signal processing; system operation does not require extensive operator training; the resolution of the system (2 inches x 2 inches) permits location of a suspected weapon. This latter feature eliminates the need for a complete search of a passenger. Results of a laboratory measurement program are presented in support of the technique. (Author)

DESCRIPTORS: (*Microwave equipment, Evaluation), (*Airports, *Ordnance detectors), Skin(Anatomy), Dielectric properties, Guns(Ordnance), Specular reflection, Microwave spectra, Microwave antennas, Cost estimates

IDENTIFIERS: Concealed weapons, *Weapon detection

PB-21[illegible]323/9 NTIS Prices: PC$4.50/MF$0.95

Risks for Production of Nuclear Explosives in Secret

Foersvarets Forskningsanstalt, Stockholm (Sweden). (2540000)
AUTHOR: Gylden, N., Holm, L. W.
A6741L4 FLD: 18C NSA3012
Mar 74 29p
MONITOR: 18
In Swedish. U.S. Sales Only.

ABSTRACT: For abstract, see NSA 30 12, number 31982.

DESCRIPTORS: (*Nuclear explosives, *Production), Crime detection, Hazards, Plutonium

IDENTIFIERS: NTISAEC

FOA-C-4567-T3 NTIS Prices: PC$4.50/MF$2.25

*ABSTRACT:*

*The possibilities for criminals and illegal organizations to produce nuclear explosives are discussed. Based on the technical function of the nuclear explosive, the problems that must be solved in order to produce a bomb are described. The assumptions for obtaining the fissile material are treated.*

Activation Analysis: A Literature Search

Philippine Atomic Energy Commission, Diliman, Quezon City. (5184900)
A6724F2 FLD: 7D, 99A NSA3011
4 Oct 73 233p
MONITOR: 18
U.S. Sales Only.

ABSTRACT: For abstract, see NSA 30 11, number 28919.

DESCRIPTORS: (*Activation analysis, *Bibliographies), Crime detection, Neutron reactions

IDENTIFIERS: NTISAEC

PAEC(A)-7332(Suppl.1) NTIS Prices: PC$14.75/MF$2.25

*ABSTRACT:*

*This bibliography contains 1,266 entries which were abstracted in NSA during the period December 1972 to January 1974.*

Computers and Crime

California Univ., Livermore Lawrence Livermore Lab. (9500007)
AUTHOR: Abbott, R. P.
A6613I1 FLD: 5D NSA3004
25 Apr 74 17p
REPT NO: CONF-740427-2
CONTRACT: W-7405-eng-48
MONITOR: 18

ABSTRACT: For abstract, see NSA 30 04, number 12092.

DESCRIPTORS: (*Computers, *Crime detection), Data, Information, Laws, Legal aspects, Operation, Security

IDENTIFIERS: NTISAEC

UCRL-75656 NTIS Prices: PC$4.00/MF$2.25

*ABSTRACT:*

*From Carnahan conference on electronic crime countermeasures; Lexington, Kentucky.*

Automatic Background Compensating Hand and Shoe Monitor

United Nuclear Industries, Inc., Richland, Wash. (Usa). (9506320)
AUTHOR: Arnold, D. F.
A6562K4 FLD: 18D, 77E NSA3002
24 Oct 73 12p
CONTRACT: AT(45-1)-1857
MONITOR: 18

ABSTRACT: For abstract, see NSA 30 02, number 03293.

DESCRIPTORS: (*Radiation monitors, *Operation), (*Personnel monitoring, *Geiger-mueller counters), (*Hands, *Radiation monitoring), (*Clothing, Radiation monitoring), Alarm systems, Calibration, Contamination, Feet, Specifications

IDENTIFIERS: NTISAEC

UNI-90 NTIS Prices: PC$4.00/MF$1.45

*ABSTRACT:*

*Specifications, operation, circuit description, and calibrating equipment for a detector system fro monitoring contamination on the hands and feet of personnel are ciscussed. The monitor uses 24 mica window pancake GM tubes tc detect contamination on the monitcred person. Each section (right-hand, left-hard, and feet) uses eight GM tukes.*

Single Scintillation Crystal Versus Phoswich Detectors for in Vivo Low-Energy Photon Detection

Dow Chemical U.S.a., Golden, Colo. Rocky Flats Div. (9500185)
AUTHOR: Tyree, W. H.
A6434B3 PLD: 18D, 77E NSA2908
7 Jan 74 15p
CONTRACT: AT(29-1)-1106
MONITOR: 18

ABSTRACT: For abstract, see NSA 29 08, number 18399.

DESCRIPTORS: (*Plutonium, *Radiometric analysis), (*Uranium, Radiometric analysis), (*Solid scintillation detectors, *Performance), (*X-ray detection, Solid scintillation detectors), Body, In vivo, Personnel monitoring, Sensitivity

IDENTIFIERS: AEC

RFP-2136 NTIS Prices: PC$4.00/MF$1.45

*ABSTRACT:*

*Tabulated data comparing the operating parameters of a single crystal and a dual-crystal configuration are included.*

Portal Monitor for Diversion Safeguards

Los Alamos Scientific Lab., N.Mex. (Usa). (3820000)
AUTHOR: Sampson, T. E., Fehlau, P. E., Worth, G. M., Henry, C. N.
A6371A1 FLD: 18D, 77E NSA2905
1973 20p
REPT NO: CONF-731101-45
CONTRACT: W-7405-eng-36
MONITOR: 18

ABSTRACT: For abstract, see NSA 29 05, number 10769.

DESCRIPTORS: (*Safeguards, Radiation monitors), (*Radiation monitors, *Performance), Efficiency, Nuclear materials diversion, Personnel, Plastic scintillation detectors, Plutonium 239, Sodium iodides, Solid scintillation detectors, Uranium 235, Uranium 238

IDENTIFIERS: AEC

LA-UR-73-1564 NTIS Prices: PC$3.00/MF$1.45

*ABSTRACT:*

*Two prototype doorway monitors to deter the diversion of special nuclear materials have been designed and constructed. One prototype utilizes plastic scintillators while the other contains NaI (Tl) detectors. Both prototypes utilize a unique digital, sliding interval, warning logic module. Features of these two systems are described and their sensitivity for detection of 235U, 239Pu, and 238U are presented.*

Health Physics and Medical Division Progress Report, January--December 1972

Ukaea Research Group, Harwell. Atomic Energy Research Establishment. (64C8000)
AUTHOR: Johnston, J. E., Suttar, T. V.
A6262K4 FLD: 6R, 57V, 77F NSA2901
Jul 73 73p
MONITOR: 18
U.S. Sales Only.

ABSTRACT: For abstract, see NSA 29 01, number 00362.

DESCRIPTORS: (*Radiation protection, *Research programs), Air pollution, Autoradiography, Biology, Biomedical radiography, Crime detection, Environment, Fallout, Inhalation, Medicine, Neutron dosimetry, Personnel dosimetry, Quantitative chemical analysis, Radioactive aerosols, Radiobiology, Toxicity, United kingdom, Whole-body counting

IDENTIFIERS: AEC

AERE-PR/HPM-17 NTIS Prices: PC$5.75/MF$1.45

*ABSTRACT:*

*The subject is dealth with in sections: inhalation toxicology and bioanalytical studies, whole-body counting, radiation physics, special investigations and cellular radiobiology, neutron dosimetry, personrel dosimetry service, analytical radiation spectrometry and data processing, fallout, reactor aerosols, medical services (x-ray department), environmental analysis project (quantitative chemical analysis), atmospheric pollution, autoradiographic detection of fingerprints using 35SO2, publications.*

Pattern Recognition as a Statistical Method for Analyzing the Confidence Level in the Identification of Objects

Interuniversitair Reactor Instituut, Delft (Netherlands). (4241000)
AUTHOR: de Bruin, M., Korthoven, P. J. M., Duin, R. P. W., Groen, F. C. A., Bakels, C. C.
A6145C2 FLD: 7D, 59A NSA2808
1972 21p
MONITOR: 18
U.S. Sales Only.

ABSTRACT: For abstract, see NSA 28 08, number 17853.

DESCRIPTORS: (*Crime detection, Activation analysis), (*Activation analysis, *Statistics), Archaeological specimens, Biological materials, Distribution, Minerals, Neutron beams, Neutron reactions, Nondestructive analysis, Nuclear reactions

IDENTIFIERS: AEC

IRI-133-72-11 NTIS Prices: PC$3.25/MF$1.45

*ABSTRACT:*

*A statistical identification method to be used with nondestructive neutron activation is described that is basically a pattern recognition procedure.*

Spectroscopic Studies of Luminescence Emitted by Dyes Irradiated by Laser Light

Army Natick Labs Mass (040300).
AUTHOR: Sousa, John A., Roach, Joseph F.
A5453L1 FLD: 17E, 7D, 15G, 63G, 59G USGRDR7224
1972 10p
MONITOR: 18

ABSTRACT: To reduce the detectability of the soldier under field conditions using currently available visual and electro-optical methods, several dyes have been integrated into military equipment to blend in with the background. The authors have established that this method of approach would likely be inefficacious against multiple wavelength laser emission since materials, on the absorption of laser light, would luminesce and emit light at a wavelength differing from the laser. They have pursued luminescence studies of dyed systems and found an effective method for using this characteristic of light emission to defeat the purpose for which coloring schemes are intended.

DESCRIPTORS: (*Clothing, *Fluorescence), (*Infrared detectors, Fluorescence), Dyes, Camoutlage, Target discrimination, Light pulses, Irasers, Night vision, Gas lasers

IDENTIFIERS: *Laser induced fluorescence, Personnel detection, Helium neon lasers

AD-750 377 NTIS Prices: PC$3.00/MF$0.95

U.S. Security Equipment has Excellent Sales Potential in United Kingdom

Bureau of International Commerce, Washington, D.C.
A5301K1 FLD: 5C, 13L, 65C, 65E, 83A, 56C, 86G USGRDR7222
Sep 72 7p
REPT NO: IMIS-72-033
MONITOR: 18

ABSTRACT: The guides provide background data to sales throughout the world, by country and by product. They are prepared in advance of trade center shows, trade fairs, and exhibitions to assist U.S. businessmen planning to participate. Descriptions are provided of markets, sales opportunities, demand for items on sale, international competition, sales approach, and sales and technical requirements. For individual country and product, see below:

DESCRIPTORS: (*International trade, *Market research), (*Fire alarm systems, International trade), Great Britain

IDENTIFIERS: International Marketing Information Service, Exhibitor's Export Market Guides, *Burglar alarm systems

COM-72-50035-033 NTIS Prices: PC$0.10/MF$0.95/copy

Installation, Test and Evaluation of a Large-Scale Burglar Alarm System for a Municipal Police Department

Cedar Rapids Police Dept., Iowa.

Final rept. 1 Sep 69-31 Dec 70.
A5252L4 FLD: 5D, 5K, 13L, 56C, 91I USGRDR7221
Dec 71 64p
CONTRACT: LEAA-NI-70-009
MONITOR: LEAA-NI 70-009

ABSTRACT: The second phase of this project involved the operation and evaluation of burglar alarm equipment that was designed and installed in 350 high-risk small businesses and schools during Phase I. The alarms were connected to police headquarters by leased telephone lines. A control group of commercial establishments was matched on the basis of type, location, and size of business and prior burglary experience. In 90% of the cases in which the police received an alarm from the experimental group, either the thief was captured or no property loss resulted. Captures occurred in 26% of the attempted burglaries in the test group compared with only 3% in the control group. The study also showed a high clearance rate for arrests resulting from alarms, and a decrease in false alarms. (Author)

DESCRIPTORS: (*Warning systems, *Law enforcement), (*Commercial buildings, Warning systems), Crimes, Criminal investigations, Protection, Detectors, Sensor characteristics, False alarms, Telephone lines, Police, Centralized control

IDENTIFIERS: *Burglar alarm systems, Antiintrusion alarms

PB-211 936 NTIS Prices: PC$3.00/MF$0.95

Installation, Test and Evaluation of a Large-Scale Burglar Alarm System for a Municipal Police Department

Cedar Rapids Police Dept., Iowa.

Interim rept.
A5243L1 FLD: 13L, 5D, 56C, 91I USGRDR7221
Dec 71 64p*
CONTRACT: LEAA-NI-70-009
MONITOR: NCJ 001748

ABSTRACT: Preliminary report indicates that burglar alarms can be simple and effective but have limitations. A one year test by the Cedar Rapids Police Department indicates more research is needed. The study asks as many questions as it answers. Simple devices located at a limited number of possible points of entry were used and proved effective at catching burglars. The clearance rate for arrests resulting from alarms was 50% above the national rate. Burglars look for alarms and tend to avoid well protected locations. The system installation is critical and must be made with skill following police approved practices. False alarms can be reduced to an acceptable figure with proper police control and supervision. More study is needed of intrusion through unprotected points. (Author)

DESCRIPTORS: (*Warning systems, *Law enforcement), Evaluation, Crimes, Prevention, Statistical analysis, Police, Centralized control

IDENTIFIERS: *Burglar alarm systems

PB-211 733 NTIS Prices: PC$4.50/MF$0.95

MARDS Antenna Design for Seismic Detection Systems

Harry Diamond Labs Washington D C (163050)

Technical memo.
AUTHOR: Reggia, Frank
A5215C1 FLD: 9E, 17J, 66A, 631, 63G USGRDR7221
Aug 72 52p
REPT NO: HDL-TM-72-22
PROJECT: HDL-11715
MONITOR: 18
Report on the Medium Artillery Delivered Sensor (MARDS) antenna.

ABSTRACT: A theoretical and experimental program has been conducted to determine an optimal antenna design for use with the MARDS (Medium Artillery Delivered Sensors) seismic detection system. Several models of MARDS antennas (vertically polarized) were evaluated over a frequency range of 100 to 200 MHz in the laboratory, in an anechoic chamber, and at an outdoor antenna range. Also, several test dipole and monopole antennas were designed and evaluated within this frequency range for optimum performance with the TDV (terminal delivered vehicle) of the system. (Author)

DESCRIPTORS: (*Omnidirectional antennas, Design), (*Warning systems, *Seismometers), (*Gun launched, Seismometers), Very high frequency, Dipole antennas, Reliability(Electronics), Performance(Engineering), Antenna radiation patterns, Projectiles, Howitzers

IDENTIFIERS: MARDS(Medium Artillery Delivered Sensors), Medium artillery delivered sensors, Monopole antennas, *Seismic detection systems, Design criteria, *Antiintrusion sensors, Personnel detection

AD-748 825 NTIS Prices: PC$3.00/MF$0.95

Investigation into the Attenuation of Seismic Impulses in Different Soil Types

Naval Postgraduate School Monterey Calif (251450)

Master's thesis
AUTHOR: Hester, Milton Jensen
A4924L4 FLD: 17J, 8M, 15G, 63I, 74H USGRDR7218
Mar 72 60p

ABSTRACT: A review or research indicates that the attenuation of seismic impulses is a complex function of such factors as moisture, soil thickness, substrata homogeneity, substrata consistency, and vegetation. The problem encountered when seismic devices are employed in a tactical situation is the prediction of ranges of detection for different soil types without resorting to soil samples, compression tests, etc. A knowledge of the seismic characteristics or the ranges of detection in various soil types would be very beneficial when employing seismic devices. This thesis will show a relationship, useful for prediction, between the attenuation properties and the range at which a test signal is first detected at a preset level. (Author)

DESCRIPTORS: (*Microseisms, Detection), (*Signal generators, *Soils), (*Tactical warfare, Countermeasures), Attenuation, Classification, Passive defense, Early warning systems, Theses

IDENTIFIERS: AN/GSQ-151, Antiintrusion devices, Truck signatures, Target signatures, Personnel detection, Perimeter defense

AD-745 837 NTIS Prices: PC$3.00/MF$0.95

Target Detection in the Field

Human Resources Research Organization Alexandria Va (405260)
AUTHOR: Maxey, Jeffery L., Cavines, James A.
A4513A2 FLD: 5J, 56K USGRDR7214
May 72 8p
REPT NO: HumRRO professional paper-11-72
CONTRACT: DAHC19-70-C-0012
Presented at the Annual Meeting of the American Psychological Association (79th), Washington, D. C. Sep 71.

ABSTRACT: A factorial experiment was designed to determine whether a negative exponential target detection model was adequate for describing the detection of moving human targets by stationary observers, and whether the observer's detection behavior was affected by target speed, target-to-observer range, or the terrain in which the target appeared. Ninety Army enlisted men detected moving human targets in three different types of terrain. Analysis showed that the negative exponential model did not adequately describe the men's detection behavior, but that target speed, target-to-observer range, and the terrain in which the target appeared significantly affected their detection times. (Author)

DESCRIPTORS: (*Military training, *Target recognition), (*Visual perception, *Army personnel), Target acquisition, Velocity, Terrain

AD-743 158 NTIS Prices: PC$3.00/MF$0.95

Experimental Short-Pulse X-Ray Detection System

Bendix Corp Ann Arbor Mich Aerospace Systems Div (402043)

Final rept. Jul 69-Aug 71.
A450482 FLD: 1B, 51G USGRDR7214
Aug 71 62p
REPT NO: BSR-3164
CONTRACT: DOT-FA69WA-2218
PROJECT: FAA-502-401-064
MONITOR: FAA-RD-72-45

ABSTRACT: The report covers the experimental study program to establish the design requirements of an operational system that can solve the problem of concealed weapon detection on personnel, using low level radiation X-rays. (Author)

DESCRIPTORS: (*Civil aviation, Aviation safety), (*Personnel, *Ordnance locators), Design, X-ray photography, Magnetic detectors, Image intensifiers(Electronics), Fiber optics, Television equipment, Data processing systems, Experimental data

IDENTIFIERS: *Airport security, Personnel inspection, Hijacking

AD-742 969 NTIS Prices: PC$3.00/MF$0.95

A Mechanism for the Formation of Electrically Charged Ammonia-Water Clusters in the Condensation Nuclei Personnel Detector

Edgewood Arsenal Md (401007)

Technical rept. Jun 68-Dec 69
AUTHOR: Harden, Charles S.
A330413 FLD: 7D, 15C, 15B, 59A, 59G, 74J, 74D USGRDR7202
Nov 71 24p
REPT NO: EA-TR-4569
PROJECT: DA-1-B-662111-A-197, DA-1-B-062109-A-197
TASK: 1-B-662111-A-19701, 1-B-062109-A-19701

ABSTRACT: The report presents the results of investigations of the mechanism of formation of ionic clusters of ammonia and water molecules, which can react with acid vapor to form condensation nuclei. An apparatus designed especially for the study of near-atmospheric pressure ion-molecule reactions is described. Ionic species that react with the acid to form the condensation nuclei are presumed to be of the type H(+)(NH3)(H2O). These ionic clusters are the products of a series of ion-molecule reactions originating in a corona discharge. The formation of the clusters in moist air containing trace amounts of ammonia is proposed to proceed by the successive formation of N2(+) (initial ion formed in the discharge), N2H(+) and H2O(+), H3O(+), H(+)(H2O)2, . . . , H(+)(H2O)n, and H(+)(NH3)(H2O)n. A similar mechanism is proposed with O2(+) acting as the initial ion. (Author)

DESCRIPTORS: (*Ammonia, *Gas detectors), (*Enemy personnel, Gas detectors), (*Mass spectroscopy, Ammonia), Ions, Nucleation, Water vapor, Hydrates, Spectrum analyzers, Design

IDENTIFIERS: *Personnel detector, Condensation nuclei, *Ion molecule interactions, Clustering, Personnel detection, Mass spectrometers

AD-733 308 NTIS Prices: PC$3.00 MF$0.95

Safeguards Personnel Monitor

Dow Chemical Co., (Golden, Colo.) Rocky Flats Div.
AUTHOR: Martinez, J. L., Cunningham, G. J., Forrey, C. R.
A3213C1 FLD: 18D, 77E NSA2520
12p
CONTRACT: AT(29-1)-1106
Pro' 12. Annual Meeting Of The Nuclear Materials Management- West Palm Beach, Fla. (29 Jun 1971).

ABSTRACT: For abstract, see NSA 25 20, number 46610.

DESCRIPTORS: *Nuclear materials management, *Radiation detectors/ scintillation,

CONF-710617-16 NTIS Prices: PC$3.00 MF$0.95

*ABSTRACT:*

*The purpose of a safeguards monitor is tc prevent the accidental or intentional diversion of special nuclear materials. The monitor must have high sensitivity for the radiometric scanning of items passing through it, and must have a fast response time. The personnel monitor described meets these requirements by using two 24-in. by 6-in. by 2-in. plastic scintillators that are sensitive to bcth gamma and neutron radiation. Thc electronic equipment used with these plastic scintillators corsists of the standard phctomultiplier, preemplifier, amplifier, and single-chanrel analyzer combination.*

Personnel Search Device

Sperry Rand Corp Charlottesville Va Sperry Marine Systems Div ( 389560)

Final technical rept.
AUTHOR: Carpentier, Richard A., Dial, Kenneth G.
A3005I2 PLD: 17F, 63D, 56C USGRDR7122
Sep 71 13p
CONTRACT: F33657-70-C-0403
MONITOR: RADC-TR-71-183

ABSTRACT: The objective of the effort was to develop a highly sensitive magnetic gradiometer (ferrous metal detector) packaged in a night stick. The equipment was designed to be camouflaged and otherwise concealed upon the user to permit limited covert operation in the search of concealed weapons. The sensitivity would permit personnel search without touching the person being searched. This report describes the gradiometer function, equipment design and problems and specifies on a flux gate gradiometer which permits a signal of 7.6 gamma measurement in the presence of the earth's magnetic field that can be as large as six tenths of an oersted or 60,000 gamma. (Author)

DESCRIPTORS: (*Magnetic detectors, *Military police), (*Small arms, Magnetic anomaly detection), Magnetometers, Sensitivity, Alkaline cells, Auditory signals, Earphones, Design, Magnetic fields

IDENTIFIERS: *Concealed weapon detection, *Personnel search devices, Nickel cadmium batteries

AD-730 336 NTIS Prices: PC$3.00 MF$0.95

Hijacking, Selected Readings

Department of Transportation Washington D C Library Services Div ( 405410)
A2914E4 FLD: 1B, 5D, 56C, 51B, 85A USGRDR7121
Jul 71 59p*
RPPT NO: Bibliographic List-5

ABSTRACT: The bibliography is a selected, partially annotated listing of journal and newspaper articles, books, reports, and congressional documents on the subject of aircraft hijackings(Air piracy). The time covers February 1969-December 1970; The arrangements chronological with a subject index. (Author)

DESCRIPTORS: (*Criminology, *Aircraft), (*Bibliographies, Criminology), (*Civil aviation, Criminology), Abstracts, International law, Aviation safety, Political science, Sociology, Psychology, Air transportation, Detection, Aircraft equipment, Periodicals, Newspapers

IDENTIFIERS: *Hijackings, *Air law, Air piracy, *Aircraft hijackings, Antihijacking systems, Airplane hijackings, Hijack detection devices

AD-729 414 NTIS Prices: PC$3.00 MF$0.95

Hardware Parameters Related to Operator Training Capabilities

Human Resources Research Organization Alexandria Va (405260)
AUTHOR: Bishop, Harold P.
A2681F2 FLD: 5I, 56I USGRDR7118
Jun 71 9p
REPT NO: HUMRRO professional paper-9-71
CONTRACT: DAHC19-70-C-0012
Presented at the Annual Army Human Factors Research and Development Conference (16th), Fort Bliss, Texas, Oct 70.

ABSTRACT: The research reported is part of an effort to identify critical human factors problems in the use of new night observation devices, and to develop effective techniques of training men in the use of these devices. Two techniques for training operators of the AN/TSS-7 long range night observation device are described and compared. Pictorial training aids were developed and evaluated; traditional platform instruction was compared with a videotaped instructional sequence. (Author)

DESCRIPTORS: (*Night vision, *Military training), (*Training devices, Night vision), Visual perception, Radar equipment, Infrared detectors, Training devices, Teaching methods, Operators(Personnel)

IDENTIFIERS: Low light level viewing, Night vision devices

AD-727 657 NTIS Prices: PC$3.00 MF$0.95

Proceedings of Carnahan Conference on Electronic Crime Countermeasures, held at Carnahan House, Kentucky University, Lexington on April 22-24 1971

Kentucky Univ., Lexington. Coll. of Engineering. (402 333)
A2051I1 FID: 5K, 17D, 56C, 63B USGRDR7111
Apr 71 182p*
REPT NO: UKY-Bull-96
Sponsored in part by Kentucky Commission on Law Enforcement and Crime Prevention. Prepared in cooperation with Institute of Electrical and Electronics Engineers. See also rept. dated Apr 70, PB-190 589.

ABSTRACT: ;Contents: System analysis and design of microwave motion detection equipment for premise protection; Sensor field processing; Signal processing and the false alarm for motion detectors; Image motion sensor; Private ultrasonic alarm; Surveillance under low light level conditions; Night scope for low light level surveillance; Passive infrared intrusion detector for covert unattended surveillance; The Mount Vernon Story, the world's first police operated LLLTV system; No-touch frisk--electronics weapons detection; Police alarm system; The performance of a high speed mobile teleprinter system using existing communication equipment; A new approach to full duplex communications; Mixed base modulation - a new technique; Experimental techniques for automatic speaker identification; Vehicle location system dependent upon standard broadcast transmissions; Development of a police helicopter df-homing system; An automatic vehicle location system using a low frequency hyperbolic reference grid; Mobile radio data systems with some applications in vehicle fleet control; Application of computer-controlled spectrum surveillance systems to crime countermeasures; An improved motion detection system.

DESCRIPTORS: (*Criminal investigations, Electronic equipment), (*Law enforcement, Meetings), (*Electronic countermeasures, Law enforcement), Proceedings, Detectors, Warning systems, Low light level viewing, Visual surveillance, Television systems, Radio equipment, Homing devices, Criminology, Speech, Identification systems

IDENTIFIERS: *Motion sensors, *Intrusion detectors, Weapon detectors

PB-198 324 NTIS Prices: PC$3.00 MF$0.95

Riot Control: Analysis and Catalog

Army Limited War Lab., Aberdeen Proving Ground, Md.

Final rept.
AUTHOR: Samuels, David W., Egner, Donald O., Campbell, Donald
A2035I1 FLD: 5K, 56C USGRDR7111
Oct 69 163p*
REPT NO: LWL-TR-69-14
Distribution Limitation now Removed.

ABSTRACT: The report attempts to provide a systematic analysis of some types of civil distrubances and a survey of related developmental materiel. The major limitation of the analysis is its restriction to gehetto - type riots, necessitated by limitations in time and available information. However, the materiel items described are universal in application to various forms of civil disturbances. The first part of the report analyzes such riots by identifying common characteristics of a number of disturbances which have occurred in the United States and describing the experiences of various security forces in their control. The latter part of the report serves as a catalog of materiel items, not already in the Army inventory, which may be useful in providing a more flexible response to the special requirements of riot control. (Author)

DESCRIPTORS: (*Counterinsurgency, *Urban areas), (*Army equipment, Military requirements), Insurgency, Group dynamics, Leadership, Motivation, Threat evaluation, Buildings, Damage, Sensors, Traffic, Protection, Combat information centers, Communication equipment, Small arms, Non-lethal agents, Smoke munitions, Artillery, Ultrasonic radiation, Chemical warfare agents, Antipersonnel weapons, Psychological warfare, Fire extinguishers, Medical equipment, Armor, Costs, Advanced planning

IDENTIFIERS: *Riot control, *Civil disorders, Private property, Patrols, Pacification, *Ghettoes

AD-861 296 NTIS Prices: PC$3.00 MF$0.95

Seismic Detection and Ranging

Army Test and Evaluation Command, Aberdeen Proving Ground, Md. (041 750)

Final rept. on materiel test procedure.
A1464H2 FLD: 17J, 14B, 63T, 63G, 73D USGRDP7104
20 Mar 70 12p
REPT NO: MTP-6-2-333
PROJECT: AMCR-310-6
Distribution Limitation now Removed.

ABSTRACT: The objective of this materiel test procedure is to describe the engineering test procedures required to determine the technical performance and characteristics of seismic detection and ranging devices, relative to the criteria expressed in applicable qualitative materiel requirements, small development requirements, technical characteristics, or other appropriate requirements and documentation, and determining their suitability for an intended use. (Author)

DESCRIPTORS: (*Enemy personnel, Detection), (*Seismographs, Test methods), Ranges(Distance), Vibration, Test methods, Response, Spectrum signatures

IDENTIFIERS: *Seismic detection, Commodity engineering test procedures, *Personnel detection

AD-869 898 NTIS Prices: PC$3.00 MF$0.95

Development of Methods for Detecting and Measuring Volatile Human Effluents

Edgewood Arsenal, Md. (401 007)

Status rept.
AUTHOR: Oberst, Fred W., Ellin, Robert I., Farrand, Richard L., Billups, Norman B., Koon, William S.
A1J03J4 FLD: 153, 7D, 63G USGRDR7102
Aug 70 77p
REPT NO: EA-TR-4416
PROJECT: DA-1-B-622706-AD-26
TASK: 1-B-622706-AD-2601
Distribution Limitation now Removed.

ABSTRACT: Methods have been developed for determing the various constituents and amounts of volatile effluents emitted by man. A chamber was designed and constructed for collection of the effluents. A description is given of the equipment, its operation, and the procedures for preparing air that is free of contaminants for the chamber. Chamber air containing effluents from man is sampled by means of cryogenic trapping, and two condensation nuclei counters are used to measure submicroscopic liquid and solid particles. One contains a converter that changes ammonia gas to submicroscopic airborne particles. Air from the chamber is also monitored for CO2 content. Retention times and relative retention times for various peaks in gas chromatograms permit tentative identification of constituents by comparing the values with retention times of over 200 standard compounds previously determined under nearly identical conditions. Mass spectrometry was used to confirm identities. Preliminary runs have been made on three chamber experiments with man. At least 12 constituents have been identified definitely and another 19, tentatively. The promblems in interpreting gas chromatograms and mass spectral data for identification of various components in effluents from man are discussed. (Author)

DESCRIPTORS: (*Gas chromatography, *Respiration), (*Enemy personnel, Detection), (*Gas detectors, Warning systems), Gas analysis, Ammonia, Carbon dioxide, Amines, Water vapor, Excretion, Particles, Identification, Quantitative analysis, Nucleation, Condensation, Test facilities, Standards, Cryogenics, Gas filters, Sampling, Mass spectroscopy, Air

IDENTIFIERS: Human effluvia, Condensation nuclei, Trimethylamines, *Personnel detectors

AD-874 402 NTIS Prices: PC$3.00 MF$0.95

COST SENSITIVITY ANALYSIS OF A GROUND SENSOR SYSTEM

Rand Corp Santa Monica Calif (296600)
AUTHOR: Weaver, K. K.
A0303E2 FLD: 14A, 15G, 70D USGRDR7013
Apr 70 13p
REPT NO: P4361

ABSTRACT: The purpose of the paper is to describe cost sensitivity analysis and to illustrate its use. Sensitivity analysis is the systematic investigation of the relationship of total system costs and system design and cost parameters. Sensitivity analysis studies the change in total system cost as a result of a change in the cost, operation mode, capability, or other feature of some part of the total system. (Author)

DESCRIPTORS: (*Combat surveillance, Data transmission systems), (*Enemy personnel, Detection), (*Systems engineering, *Costs), Statistical analysis, Sensitivity, Correlation techniques, Limited war, Acoustic detectors

IDENTIFIERS: *Cost sensitivity analysis, Cost analysis

AD-705 983 CFSTI Prices: HC$3.00 MF$0.65

THE COMPLETE (alpha,beta,gamma) PERSONNEL MONITOR

Argonne National Lab., Ill. (033 550)
AUTHOR: Fergus, Richard W.
A0255H2 FLD: 18D, 927 NSA2408
Oct 69 18p
CONTRACT: W-31-109-eng-38

DESCRIPTORS: (*Radiological contamination, Personnel), (*Radiation monitors, Design), Alpha counters, Beta particles, Gamma counters, Warning systems

IDENTIFIERS: PERCI(Personnel Contamination Instrumentation), Personnel contamination instrumentation

ANL-7616 CFSTI Prices: HC$3.00 MF$0.95

*ABSTRACT:*

*A personnel hand and shoe monitor, PERCI (PERsonnel Contamination Instrumentation), has been developed to provide simultaneous detection of alpha, beta, and/or gamma contamination. Automatic operation provides uniform survey sensitivity that is independent of the user. Logic circuitry prevents incomplete surveys and causes "go" or "no-go" instructions to be flashed on an illuminated display panel. Alpha, beta, and/or gamma events for each channel are detected with a large-area, gas-flow detector and pulse-separation circuitry.*

AUTOMATIC MOVEMENT DETECTION APPLIED TO A TELEVISION SURVEILLANCE SYSTEM

Weapons Research Establishment, Salisbury (Australia). Dept. of Supply.
AUTHOR: Boyle, K. W.
A008362 FLD: 17B, 910 STAR0807
Aug 69 14p
REPT NO: WRE-TN-ED-177

DESCRIPTORS: *Optical scanners, *Surveillance, *Television systems, *Warning systems, Correlation detection

N70-19333 CFSTI Prices: HC$3.00 MF$0.95

*ABSTRACT:*

*An automatic movement detection system is described for use in conjunction with a television surveillance system. Any movement, or change in illumination, occurring in the scene under surveillance, causing a change in the picture being transmitted, results in alarm being raised. Features include a method of reducing the likelihood of false alarms and a means of matching detection sensitivity to the likely rate of movement of any person or object.*

PROCEEDINGS 1969 CARNAHAN CONFERENCE ON ELECTRONIC CRIME COUNTERMEASURES, LEXINGTON, KENTUCKY, APRIL 24-26 1969

Kentucky Univ., Lexington. Coll. of Engineering. (402 333)
648512 PLD: 5K, 942 USGRDR6919
1969 179p*
REPT NO: Bull-89
Prepared in cooperation with IEEE, Lexington Section, Ky. Sponsored in part by National Inst. of Law Enforcement and Criminal Justice, Washington, D.C.

ABSTRACT: Contents: Law enforcement and the electronic countermeasure; Some psychological problems associated with the expanded use of surveillance techniques; Photo surveillance; Major campus security hazard; Riots; Automatic telephone reporting systems; Evaluation of electronic vault protection against burning bar attack; An experimental transmitter for use by law enforcement agencies during riots; Controlling sensitive reports; Voice privacy unit; Simultaneous location, identification and communication system; Application of electro-optical fingerprint correlators; Description of a real time completely automatic speaker verification system; Positive personnel authemtication by handwriting; Voice pattern identification of speakers; Application of neutron activation analyses in criminal investigations; Detection and identification of poison in water by laser raman spectroscopy; An electronic tag for theft control.

DESCRIPTORS: (*Criminology, Symposia), (*Electronic countermeasures, Criminology), Warning systems, Detection, Protection, Control systems, Identification systems, Speech recognition, Pattern recognition, Radioactivation analysis, Raman spectroscopy, Communication systems, Real time

PB-185 176 CFSTI Prices: HC$6.00 MF$0.95

DETECTION AND IDENTIFICATION OF CHEMICAL SIGNATURES

IIT Research Inst Chicago Ill (175350)

Final rept. 8 Jan 66-7 Apr 69
AUTHOR: Dravnieks, A., Krotoszynski, B. K.
6472K1 FLD: 7D, 909 USGRDR6919
19 May 69 183p
REPT NO: IITRI-C609313
CONTRACT: DA-18-001-AMC-954(X)
PROJECT: IITRI-C6093
PORTIONS OF THIS DOCUMENT ARE NOT FULLY LEGIBLE. SEE INTRODUCTION TO THIS JOURNAL.

ABSTRACT: In the work on the detection and identification of human chemical signatures, experimental and computerized statistical techniques were first developed, tested, and standardized. The experimental techniques solved the problems of sample collection, recovery, injection into the gas chromatograph, calibration and characterization of signature components. The sample collections were based on the principle of equilibration and were performed by means of Apiezon L-coated Teflon powder in the form of a fluidized bed. The collected samples were transferred into a special injector needle by means of an IITRI-designed transfer system. The injection of samples into the gas chromatograph was performed in a timed, automatic and reproducible manner with a specially constructed injection system. The calibration method permitted correlation of the concentrations of known signature components in air with their respective peak areas. The sensitivity of this novel process is of the order of one part per billion (by volume) of an organic component in air. (Author)

DESCRIPTORS: (*Humans, Detection), (*Gas chromatography, Humans), (*Enemy personnel, Gas chromatography), (*Odors, Detection), Mass spectroscopy, Design, Gas analysis

IDENTIFIERS: Signatures, Gas chromatography columns, *Gas detectors, *Personnel detectors

AD-691 738 CFSTI Prices: HC$6.00 MF$0.95

JAPANESE NIGHT COMBAT. PART I. PRINCIPLES OF NIGHT COMBAT

Army Forces Far East (038259)
4955J1 FLD: 15G USGRDR6819
10 May 55 194p
See also Part 2, AD-673 114.

ABSTRACT: The report discusses the history, development and training of the Japanese army for night warfare.

DESCRIPTORS: (*Armed forces(Foreign), Japan), (*Armed forces operations, *Night warfare), State-of-the-art reviews, Night vision, Visual acuity, Army training, Personnel, Tactical warfare, Warning systems, Defense systems, Maps, Training devices, Military organizations, Infantry

IDENTIFIERS: Training manuals

AD-673 113 CFSTI Prices: PC$6.00 MF$0.95

APPLICATIONS OF NEUTRON ACTIVATION ANALYSIS IN SCIENTIFIC CRIME DETECTION

General dynamics, San Diego, Calif. General Atomic Div. (146 850)

Summary rept. 1 Jan-31 Oct 66
AUTHOR: Guinn, V. P.
4861B2 FLD: 5K, 7D, 20H NSA2212
20 Oct 67 62p
CONTRACT: AT(04-3)-167

DESCRIPTORS: (*Criminology, *Radioactivation analysis), Thermal neutrons, Gamma-ray spectra, Detectors, Semiconductor devices, Test methods, Programming(Computers), Chemical analysis, Impurities, Paints, Neutron activation, Nuclear industrial applications

GA-8013 CFSTI Prices: PC$6.00 MF$0.95

*ABSTRACT:*

*Exploratory studies were conducted on neutron activation analysis of evidence-type materials and on printing inks, microscope mounting media (used for examination of hair specimens), and plastic sheeting suitable for the collection of bomb-detonation residues in test explosions.*

ELECTRONIC AUDIO RECOGNITION STUDY

Cornell Aeronautical Lab., Inc., Buffalo, N. Y. (098 300)

Quarterly progress rept. no. 3, 1 Jan-31 Mar 63
AUTHOR: Murray, A. E.
4583D1 FLD: 19E USGRDR6812
31 Mar 63 22p
REPT NO: CAL-UB-1721-X-3
CONTRACT: DA-36-039-sc-90770

ABSTRACT: In the early part of this third quarter, considerable experimental data has been obtained on the frequency modulation portion of the target recognition device. Later in the quarter, effort was concentrated on the computer analysis. The spectrum analyzing apparatus and computer programs have been completed and tested, including a capability for pictorial spectrogram print-out. Over 60 additional 10-second doppler audio samples have been selected from tape recorded boxcar signals and have been isolated and spaced on a master tape for digitizing and analysis. Added to those already on hand, the total will be equivalent to over 800 one-second test samples in both digital and analog form. Reduced sampling rates for digital spectrum analysis have proved acceptable and reduced analysis time (cost) by a factor of four. Production runs and useful additions to the existing analysis programs are proceeding. (Author)

DESCRIPTORS: (*Target recognition, Military personnel), (*Electronic equipment, Pattern recognition), Doppler radar, Doppler systems, Audiofrequency, Moving target indicators, Vehicles, Feasibility studies, Detection, Target acquisition, Spectrum analyzers, Single sideband communication systems

AD-414 837 CFSTI Price: PC$6.00

JUNGLE VISION VI: A COMPARISON BETWEEN THE DETECTABILITY OF HUMAN TARGETS AND STANDARD VISIBILITY OBJECTS IN AN EVERGREEN RAINFOREST

Army Tropic Test Center, Fort Clayton (Canal Zone). (042 290)

Research rept.
AUTHOR: Dobbins, D. A., Kindick, C. M.
4493C2 FLD: 17H USGRDR6810
Feb 66 48p
REPT NO: RR-6
PROJECT: DA-1L013091A91A-CO-001, USATECOM-9-6-0069

ABSTRACT: Twenty US infantry soldiers with normal vision were presented 108 targets at distances ranging from 30 feet to 120 feet on two sites in a canal zone evergreen rainforest. Observers were presented 18 each of the following targets: olive drab silhouettes, olive drab cylinders, double white discs, single white discs, silhouettes camouflaged by the USAERDL four-color 1948 pattern, and human targets in fatigue uniforms. Comparisons between human targets and standard visibility objects were made using four criteria: 50% detection thresholds, total number of detections, visibility gradients, and observer response variability, quantitative comparisons showed that both the olive drab silhouette and the olive drab cylinder closely approximated the detectability of the human targets; of the two objects, the silhouette was considered superior. The USAERDL four-color camouflage cloth effectively and significantly reduced detections by ground observers in jungle vegetation.

DESCRIPTORS: (*Detection, Enemy personnel), (*Jungles, Vision), Performance(Human), Target acquisition, Visibility, Measurement, Camouflage, Clothing, Colors, Illumination

AD-481 178 CFSTI Prices: PC$6.00 MF$0.95

JUNGLE VISION V: EVALUATION OF THREE TYPES OF LENSES AS AIDS TO PERSONNEL DETECTION IN A SEMIDECIDUOUS TROPICAL FOREST

Army Tropic Test Center, Fort Clayton (Canal Zone). (042 290)

Research rept.
AUTHOR: Dobbins, D. A., Kindick, C. M.
4492L2 FLD: 17H USGRDR6810
Dec 65 43p
REPT NO: RR-5
PROJECT: DA-1LG13001A91A-00-021, USATECOM-9-6-0069
See also Research report no. 8, AD-649 843.

ABSTRACT: The purpose of this study was to evaluate nonmagnifying yellow, red, and dichroic lenses as aids to personnel detection in a tropical semideciduous forest. Twenty-four US infantry soldiers with normal visual acuity were selected as observers, four subgroups of six EM each were then assigned to observe either with yellow lenses, red lenses, dichroic lenses or unaided vision, each observer was presented 40 randomly appearing human targets in fatigue uniforms who stood motionless within a 180 degree horizontal field of search. None of the lenses facilitated target detectability as measured by 50% visual thresholds, visibility gradients, or total detections when compared to unaided vision. Furthermore, no significant differences among modes of observation were found for target search time, perceived target distance, or practice gradients. Considerable difficulty was experienced with the condensation of moisture on the insides of lenses fitted both in spectacle and goggle type frames.

DESCRIPTORS: (*Detection, Enemy personnel), (*Jungles, Vision), Optical equipment, Lenses, Optical filters, Target acquisition, Performance(Human), Illumination, Tests

AD-481 177 CFSTI Prices: PC$6.00 MF$0.95

ELECTRONIC AUDIO RECOGNITION STUDY

Cornell Aeronautical Lab., Inc., Buffalo, N. Y. (098 300)

Final progress rept. 1 Jul 62-31 Jul 63
AUTHOR: Murray, A. E.
4292K4 FLD: 17I USGRDR6806
31 Jul 63 69p
REPT NO: CAL-UB-1721X4
CONTRACT: DA-36-039-sc-90770
TASK: 3A99-23-001-01

ABSTRACT: A research program has been conducted to assess and demonstrate the feasibility of automatically detecting and classifying targets from the audio output signal of battlefield surveillance doppler radars. Realistic sample signals have been collected in the field, converted to laboratory-edited analog and digital tapes, and subjected to a variety of measurements and analyses. From these analyses a relatively simple method for detecting short bursts of target signals in clutter has been devised and extension of this technique and other, slower ones, to the task of identifying detected targets has been considered. The detection method is based upon the comparison of two differently-defined 'instantaneous' frequencies which can be measured and compared in state-of-the-art analog circuits and requires on the order of 1/2-second of target signal. The method can profit from, but does not depend on, preservation of the lowest frequency (below 35 cps) components of the boxcar output signal.

DESCRIPTORS: (*Moving target indicators, Detection), (*Radar targets, Classification), Doppler radar, Audiofrequency, Combat surveillance, Search radar, Radar clutter, Vehicles, Personnel, Identification, Pattern recognition, Sound reproduction systems, Surface targets, Sound signals, Data processing systems

AD-429 894 CFSTI Price: PC$6.00

THE TRACKING LOOP: A CRITICAL REVIEW OF TRACKING AND RELATED SENSORIMOTOR STUDIES

California Univ Los Angeles Dept of Engineering (072260)

Biotechnology Lab. technical rept.
AUTHOR: Smith, Russell L., Lyman, John
3763H4 FLD: 5H, 5J USGRDR6720
Feb 66 63p
REPT NO: TR-32, 66-21
CONTRACT: N123(60530)32857A
MONITOR: 18

ABSTRACT: The report discusses the man-machine tracking system in terms of its elemental components from system input to system output. Forcing functions, display and control characteristics, central nervous system data processing and sensorimotor capabilities and limitations, are examined in an amount of detail suit to the problem. Relevant literature is critically reviewed and attempts are made to integrate findings, formulate explanatory concepts and hypotheses, and present design implications. Relative to the requirements or the tracking system, it is concluded that man's visual capabilities are more than adequate, motor capabilities lack thorough exploration, and that predictive behavior and reaction time lags impose severe constraints. It is further concluded that the effectiveness of the human operator could be significantly enhanced by taking advantage or his natural attributes and providing practical, cost-effective machine assists in those areas where his inputs are weakest with respect to the total system. (Author)

DESCRIPTORS: (*Tracking, Performance(Human)), Man-machine systems, Display systems, Central nervous system, Motor reactions, Visual perception, Behavior, Reaction(Psychology), Reflexes, Simulators, Operators(Personnel), Detection, Memory, Predictions, Target acquisition, Muscles, Neuromuscular transmission

AD-657 183 CFSTI Prices: PC$6.00 MF$0.95

JUNGLE VISION VII: SEASONAL VARIATIONS IN PERSONNEL DETECTABILITY IN A SEMIDECIDUOUS TROPICAL FOREST

Army Tropic Test Center Fort Clayton Canal Zone (042290)

Research rept.
AUTHOR: Dobbins, D. A., Chu, R. Ah, Kindick, C. M.
3272J1 FLD: 5I USGRDR6711
Jan 67 47p
REPT NO: PR-8
PROJECT: DA-1L013001A91A-00-001
MONITOR: 18

ABSTRACT: The U.S. Army Tropic Test Center conducted a study to determine the effects of the tropical wet and dry seasons on the horizontal detectability of human targets in a semideciduous forest. Testing was conducted on three jungle sites in the Canal Zone in July, 1966. Thirty infantry EM observed standing, motionless human targets appear randomly within a 180 degrees field of search at distances ranging from 30 to 115 ft. Target detections, detection cues, search times, and distance estimates were recorded. Results of the present study were compared to those of an earlier dry season study conducted on the same sites. Visibility was significantly lower during the wet season. Total target detections dropped by 44% during the period. Most of the change occurred on two of the three sites and was apparently caused by a single type of vine that loses its leaves during the dry season. Visibility gradients were of the same shape, though different levels, for both seasons. Illumination levels, search times, and distance estimates were significantly different from season to season. Visual cues contributing most to target detection were the symmetrical outlines of target's trunk and legs against jungle foliage. The lines and color of the OG-107 fatigue uniform also contributed, particularly at farther distances.

DESCRIPTORS: (*Military personnel, Detection), (*Target discrimination, Military personnel), Tropical regions, Jungles, Visibility, Illumination, Visual acuity, Thresholds(Physiology), Performance(Human)

AD-649 843 CFSTI Prices: PC$6.00 MF$0.95

APPLICATION OF NEUTRON ACTIVATION ANALYSIS IN SCIENTIFIC CRIME DETECTION, 18-MONTH SUMMARY REPORT FOR THE PERIOD MAY 1, 1962-OCTOBER 31, 1963

General Atomic, San Diego, Calif. John Jay Hopkins Lab. for Pure and Applied Science.
AUTHOR: Bryant, D. E. , Guinn, V. P. ,
0511C1 FLD: 5K USGRDR6613
27 Jul 64 94p
CONTRACT: AT(04-3)-167

DESCRIPTORS: (*Criminology, Scientific research), (*Neutron activation , Criminology),

GA-5556 CFSTI Prices: PC$6.00 MF$0.75

No abstract available

USE OF NEUTRON ACTIVATION ANALYSIS IN SCIENTIFIC CRIME DETECTION. 12-MONTH SUMMARY REPORT FOR THE PERIOD NOVEMBER 1, 1963-OCTOBER 31, 1964

General Atomic, San Diego, Calif. John Jay Hopkins Lab. for Pure and Applied Science.
AUTHOR: Bryan, D. E., Guinn, V. P.,
0434H3 FLD: 20H, 5K USGRDR6608
15 Feb 65 59p
CONTRACT: AT(04-3)-167

DESCRIPTORS: (*Criminology, Neutron activation), (*Neutron activation, Criminology), Radioactivation analysis

GA-6152 CFSTI Prices: PC$6.00 MF$0.75

No abstract available

VARIABLE FREQUENCY OSCILLATOR TYPE OF METAL DETECTOR SENSITIVE TO MUTUAL RESISTANCE CHANGES

Patent assigned to Army
AUTHOR: Stewart, Chandler
027332 FLD: 17P USGRDR4023
24 Aug 65
MONITOR: 18
Available from Commissioner of Patents, Washington, D.C., 20231, $0.50

ABSTRACT: A metal detector is disclosed which eliminates the production of an output signal that is a function of the soil in which the metal is to be detected. The detector has a feedback network to achieve maximum bandwidth of audio frequencies. These audio frequencies are obtained from the VFO without the use of a beat frequency oscillator.

DESCRIPTORS: (*Mine detectors, Land mines), (*Detectors, Metals), Patents, Oscillators, Feedback, Circuits, Phase shift, Auditory signals

Patent 3,202,909

END