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INFORMATION SYSTEMS SECURITY

PRODUCTS AND SERVICES CATALOGUE

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FORT GEORGE G. MEADE, MARYLAND 20755-6000

FOREWORD

The combination of the information age, technology, and national policy, has irrevocably pushed the United States and the National Security Agency (NSA) into an Information Systems Security age. The explosion in the uses of telecommunication devices and automated information systems has resulted in a corresponding explosion in opportunities for unauthorized exploitation of valuable information. The technology necessary to perform this exploitation is available not only to our foreign adversaries but also to terrorists and other criminal elements.

The Information Systems Security Organization of NSA is committed to fulfilling its role in providing the guidance and assistance necessary to protect classified and certain sensitive information, including that processed by U.S. Government departments and agencies and U.S. Government contractors.

This compilation of information systems security products and services is provided to assist in the selection of products that will provide an appropriate level of information security. This document brings together the various listings of NSA-evaluated information systems security products and services that may be used to protect information at several levels of sensitivity. It is not intended as a comprehensive tutorial or manual on the broad topic of information systems security. It should be viewed, instead, as a source document and working aid for those who have established a need for such products or services.

JAMES J. HEARN
Deputy Director
for
Information Systems Security

PUBLICATION INFORMATION

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For further assistance or information write to:

Director
National Security Agency
ATTN: INFOSEC Office of Customer Relations
Ft. George G. Meade, MD 20755-6000

This Catalogue is also available on-line from DOCKMASTER. Details are available in the DOCKMASTER portion of Section four.

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INTRODUCTION

Background:

The National Security Agency (NSA) manages a variety of information systems security programs. These programs had long been divided into two main areas: Communications Security (COMSEC) including TEMPEST, and Computer Security (COMPUSEC). COMSEC is protective measures designed to prevent unauthorized access, disclosure, acquisition, manipulation, modification, or loss of information while it is being communicated, regardless of the medium used -e.g., telephone, microwave, or satellite. COMPUSEC is protective measures designed to prevent deliberate or inadvertent unauthorized access, disclosure, acquisition, manipulation, modification or loss of information while it is being automatically processed or stored. These two primary disciplines - COMSEC and COMPUSEC - were organizationally joined at NSA in order to most effectively meet the nation's need for a total information systems security program. From the previous program divisions and separate disciplines have come lists of information systems security products and services that have either been evaluated against established standards, or been endorsed by NSA as having met the requirements and standards set for these products by the government. These lists now make up the Information Systems Security Products and Services Catalogue.

How to Determine Your Information Systems Security Needs:

The selection of the correct products and services for an organization's particular needs is frequently a complex matter, involving an assessment of the value and sensitivity of the organization's information, the threats to that information, and vulnerability of that information to exploitation. Once the value, vulnerability, and threat have been determined, the next step is to provide appropriate protection and security. An exhaustive explanation of how an organization goes about making these determinations is beyond the scope of this document.

A U.S. Government contractor should raise the issue of security and assistance with your Government program sponsor. An employee of a U.S. Government organization should contact his organization's telecommunications and/or computer security focal point.

For additional information, write to:

Director
National Security Agency
ATTN: INFOSEC Office of Customer Relations
Fort George G. Meade, MD 20755-6000

Categories of Information:

The products and services presented in this catalogue are designed for use in securing two general categories of Government or Government-derived information: classified, and sensitive unclassified. All of the products and services mentioned may be used to protect unclassified sensitive information. Many can be used in applications involving Government classified information. Most - but not all - of the products are also suitable for use by U.S. private companies and citizens to protect information.

Purchase and Use Restrictions:

Although most of the products and services listed can be purchased within the United States, some may have restrictions on their purchase and use. For example, the purchase of "Type 1" Endorsed Cryptographic Products is limited to the U.S. Government and its contractors. Restrictions, if any, are dependent on the type of product. Direct inquiries relative to such restrictions to:

Director
National Security Agency
ATTN: X51
Fort George G. Meade, MD. 20755-6000

Organization Of This Document:

To assist you in selecting the correct information systems security product and/or service for the level of information you need to secure or protect, and for the environment in which it needs to be protected, the lists are presented in chapter format with individual introductions provided for each. Each introduction gives details concerning the particular list and provides points of contact for further general information on the program that generated the list. The lists provide company points of contact for further information relating to a specific product or service. All of the information systems security products and services contained in this document are available to eligible buyers directly from the company points of contact provided in each list. The company points of contact can also provide information on buyer eligibility and product or service price and availability.

The nine chapters in the Information Systems Security Products and Services Catalogue are:

1. Endorsed Cryptographic Products List
2. NSA Endorsed Data Encryption Standard (DES) Products List
3. Protected Network Services List
4. Evaluated Products List
5. Preferred Products List

6. Endorsed and Potential TEMPEST Products Lists

7. The Endorsed TEMPEST Test Services List

8. NSA Degausser Products List

9. Off-Line Systems

A general explanation of each list is included below as a guide:

Endorsed Cryptographic Products List:

The Endorsed Cryptographic Products List contains products that provide electronic cryptographic coding (encrypting) and decoding (decrypting), and which have been endorsed for use in classified or sensitive unclassified U.S. Government or Government-derived information during its transmission. This endorsement means that the cryptographic subsystems have been certified as having met National Security Agency security specifications and that the product has been endorsed for the appropriate level of security. Products in this chapter are listed in two categories: "Type 1" products, which were designed to secure classified information (but which can also be used to protect sensitive unclassified information), and "Type 2" products, which are designed to protect unclassified sensitive information, and may not be used to secure classified information.

NSA Endorsed Data Encryption Standard (DES) Products List:

For a number of years, the Government has endorsed a publicly published cryptographic algorithm (i.e., a technical explanation of one way to accomplish encryption and decryption) called the Data Encryption Standard (DES). A related Federal Government standard - Federal Standard 1027 - describes how the DES algorithm should be built into cryptographic hardware. Cryptographic products that are endorsed by the National Security Agency as meeting Federal Standard 1027 are contained on the NSA Endorsed Data Encryption Standard (DES) Products List. These DES products have been endorsed for use in protecting U.S. Government or U.S. Government-derived unclassified sensitive information during transmission. They may not be used to secure classified information.

Protected Network Services List:

The Protected Network Services List contains the names and points of contact for commercial carriers providing Government-approved "Protected Services" for your communications. Companies listed here offer to provide protection service rather than a product. These services may involve techniques such as bulk trunk

encryption, or guaranteed routing on lines which have a degree of inherent security. Such "Protected Services" may be approved for the protection of sensitive unclassified information being transferred from one point to another. Because of the variety of types of service offered under this program, it is suggested that interested persons contact the companies on the list for further information.

Evaluated Products List:

Products on the Evaluated Products List are computer systems, software, or components that protect information while it is being stored or processed. They have been evaluated by the Government as to the degree of trust that can be placed in them. In order to assess this, the DoD Trusted Computer System Evaluation Criteria was written and products were evaluated against this criteria and given a level of trustworthiness. The criteria levels are explained in the chapter for this list. Included in this chapter is the Endorsed Tools List. This information is provided in order to inform system developers which formal specification and verification tools are endorsed by the National Computer Security Center for use in designing systems at the criteria's A1 level of security.

Preferred Products List:

Products evaluated for their TEMPEST characteristics are found on the Preferred Products List. TEMPEST is the short name used to refer to the overall study of "compromising emanations." These emanations are unintentional, intelligence bearing electromagnetic signals that might disclose sensitive information transmitted, received, handled or otherwise processed by an information-processing system. This list identifies telecommunications and information-processing equipment and systems that conform to the current national TEMPEST standard. This chapter will be of interest primarily to those who have classified information to secure.

Endorsed and Potential TEMPEST Products List:

A list of commercially developed and commercially produced TEMPEST telecommunications equipment that NSA has endorsed, under the auspices of the NSA Endorsed TEMPEST Products Program, for use by government entities and their contractors to process classified U.S. Government information.

Endorsed TEMPEST Test Services List:

A listing of commercial TEMPEST test services facilities that NSA has endorsed under the auspices of the Endorsed TEMPEST Test Services Program, for use by U.S. Government departments and

agencies, U.S. Government contractors and eligible TEMPEST product manufacturers to conduct TEMPEST test services related to the development and production of TEMPEST products.

NSA Degausser Products List:

This list provides data on units that have been evaluated against specific requirements for the erasure of classified data from magnetic media.

Off-Line Systems:

This chapter, which is designed primarily for use by military and DoD customers, briefly describes a variety of off-line capabilities that NSA can provide to meet customer requirements. Off-line refers to those cryptosystems where encryption and decryption are performed separately from the transmitting and receiving functions.

ENDORSED CRYPTOGRAPHIC PRODUCTS LIST

The National Security Agency (NSA) has established an inventory of cryptographic and related items which carry an NSA endorsement. This endorsement means that the communications security (COMSEC) subsystem has been certified as having met the appropriate minimum Agency security requirements and is therefore endorsed for use to secure the applicable level of Government information. The endorsement does not extend beyond the security-related characteristics of the product. NSA does not make, by virtue of its endorsement, any warranty or representation regarding the efficacy or fitness for use of the products contained on the Endorsed Cryptographic Products List (ECPL).

The ECPL contains a variety of items ranging from components to finished products with embedded cryptography. Products on this list are divided into two categories, "Type 1" and "Type 2." Type 1 products are used to secure classified information and are handled as Controlled Cryptographic Items (CCI). Type 1 products may also be used to secure certain unclassified Government information. Type 2 products are used to protect only certain unclassified Government information and are used to protect only certain unclassified Government information and are handled as Endorsed-for-Unclassified Cryptographic Items (EUCI). NSA-endorsed cryptographic products are available for purchase and use only by the U.S. Government and its sponsored contractors or entities. NSA does not normally supply either Type 1 or Type 2 products, but instead permits Authorized Vendors and Commercial COMSEC Endorsement Program (CCEP) participants to sell these products directly to eligible purchasers. CCI Type 1 products are unclassified when unkeyed. When keyed, CCI Type 1 products assume the classified level of the key being used. Type 2 products may be operated only with unclassified key.

Direct availability of listed products in no way exempts the purchasing entity from complying with the Federal Acquisition Regulation and all applicable local department and agency regulations. Federal departments and agencies should contact their appropriate Contracting Officers to see if direct contract purchasing is included in their procurement strategy for a particular product.

Further information about a product on this list should be obtained from the company points of contact provided. Companies desiring information concerning the process for proposing the development of candidate security products for the ECPL should contact:

DIRECTOR
National Security Agency
ATTN: X51
Ft. George G. Meade, MD 20755-6000

COMPANY NAME	VENDOR POC & NUMBER	PRODUCT
TYPE 1 PRODUCTS:		
Allied Signal Corp., Bendix Comm. Div. 1300 East Joppa Rd. Baltimore, MD 21204	Mr. Jack Shagena (301)583-4354	KG-84A: General purpose encryption/decryption device, low to medium speed, accepts asynchronous or synchronous input; protects all classifications of digital traffic; operates in full duplex, half duplex, and simplex modes; exceeds 29,000 hours MTBF in office environment; uses common electronic fill devices.
E-Systems, Inc. P.O. Box 33010 St. Petersburg, FL 33733	Mr. Donald Guenther (813)381-1155	
* Communication Systems Technology, Incorp. 9740 Patuxent Woods Dr. Columbia, MD 21046	Mr. Robert E. Pfister (301)381-5080	
* Pulse Engineering, Inc. 12101 Indian Creek Court Beltsville, MD 20705	Mr. Dave Madsen (301) 725-6677	
Allied Signal Corp., Bendix Comm. Div. 1300 East Joppa Rd. Baltimore, MD 21204	Mr. Jack Shagena (301)583-4354	KG-84C: General purpose encryption device; contains all KG-84A modes in addition to variable update counter, improved HF performance, synchronous out-of-sync detection, asynchronous cipher text, plain text, bypass, and European TELEX protocol. Fixed plant or tactical applications; MTBF exceeds 34,000 hrs in Com. Center environments. I/O pin-outs differ from KG-84A Uses KYK-13, KOI-18, or KYX-15 fill devices.
E-Systems, Inc. P.O. Box 33010 St. Petersburg, FL 33733	Mr. Donald Guenther (813)381-1155	
* Communication Systems Technology, Incorp. 9740 Patuxent Woods Dr. Columbia, MD 21046	Mr. Robert E. Pfister (301)381-5080	
* Pulse Engineering, Inc. 12101 Indian Creek Court Beltsville, MD 20705	Mr. Dave Madsen (301) 725-6677	
Allied Signal Corp., Bendix Comm. Div. 1300 East Joppa Rd. Baltimore, MD 21204	Mr. Jack Shagena (301)583-4354	KY-57/58 VINSON: Secures VHF/UHF AM/FM, half-duplex radios and wirelines, on-line encryption/decryption for all level of classified information. The KY-58 is installation/aircraft version. Various ancillary equipments are also available for special installations.
Group Technologies Corporation 10901 Malcolm McKinley Dr. Tampa, FL 33612	Mr. Tom Campbell (813)972-6429 Mr. Wayne Rich (813)972-6231	

* Communication Systems Technology, Incorp. 9740 Patuxent Woods Dr. Columbia, MD 21246	Mr. Robert E. Pfister (301)381-5080	
* Pulse Engineering, Inc. 12101 Indian Creek Court Beltsville, MD 20705	Mr. Dave Madsen (301) 725-6677	
Base Ten Systems, Inc. One Electronics Drive P.O. Box 3151 Trenton, NJ 08619	Mr. Marty Bergman (408)741-0480 or Mr. Jack Kelley (608)586-7010	T1 COMSEC Interface Adapter (TCIA): A Type 1 Ancillary Device for use with the KG-81/ KG-94/KG-194 family of High Speed Encryption Equipment when securing all levels of traffic over T1 transmission lines. The TCIA provides for full duplex interfacing and any necessary signal conversion between the encryption equipment T1 circuits, such as commercial T1 Data Terminal Equipment (DTE) multiplexers, etc. (the DTE Interface) on one side, and between leased and privately owned T1 span lines (the Network Interface) on the other.
Allied Signal Corp., Bendix Comm. Div. 1300 E. Joppa Rd. Baltimore, MD 21204	Mr. Al Horning (301)583-4000	KG-81: The KG-81 Trunk Encryption Device (TED) is a full duplex key generator used primarily for bulk encryption of multi-channel traffic. The KG-81 encrypts and decrypts all classifications of data at any speed from 200kbps to 20Mbps. The KG-81 is cryptographically compatible with the KG-94/ 19A/194/194A (up to 13Mbps) and the KG-95 (between 10 and 20 Mbps).
* Communication Systems Technology Incorp. 9740 Patuxent Woods Dr. Columbia, MD 21046	Mr. Robert E. Pfister (301)381-5080	
* Pulse Engineering, Inc. 12101 Indian Creek Court Beltsville, MD 20705	Mr. Dave Madsen (301) 725-6677	
Allied Signal Corp., Bendix Comm. Div. 1300 E. Joppa Rd. Baltimore, MD 21204	Mr. Al Horning (301)583-4000	KGV-68: It is a small, light-weight, low power, embeddable Type 1 cryptographic device that can be incorporated into a variety of secure applica-

*** Authorized to sell, install, and support, these equipments which are manufactured by another company.**

		tions. Encryption and decryption of synchronous binary data is performed at data rates ranging from 50 bits per second to 10 megabits per second operating in duplex mode.
AT&T Federal Systems Guildford Center P.O. Box 20046 Greensboro, NC 27420 ATTN: Dept. 71GC094400	Mr. Michael Agee (919)279-3475	STU-III (Low Cost Terminal): Compact, easy-to-use telephones that can be used for clear or secure voice or secure data communications. STU-IIIs are easily installed and will operate over single telephone lines in full duplex mode. Features include 2.4, 4.8, 9.6 voice & data; ACK/NACK signaling, and SACS capabilities in both Type 1 and 2 terminals.
Motorola, Inc., GEG P.O. Box 1417 8201 E. McDowell Scottsdale, AZ 85252	Mr. Tim Hall (602)441-2998	
General Electric Co. Government Communications Systems Department Front and Cooper St. Camden, NJ 08102	Mr. Peter Piotti (609)338-4507	
Motorola, Inc. 8220 E. Roosevelt St. Scottsdale, AZ 85257	Mr. Tim Hall (602)441-4300	STU-III Transportable Terminals: Couple desktop STU-III terminals with cellular capability and transportability. Voice/data rates include 2.4, 4.8 and 9.6 and ACK/NACK signaling. Both Type 1 and 2 terminal are available.
General Electric Co. Government Comm. Sys. Dept. Front and Cooper Streets Camden, NJ 08102	Mr. Pete Piotti (609)338-4507	
AT&T Guildford Center P.O. Box 20046 Attn: DEPT. 71GC094400 Greensboro, NC 27420	Mr. Michael Agee (919)279-3475	STU-III Secure Data Device: The STU-III Secure Data Device provides a simple and cost-effective way to protect classified government data transmission. The SDD can be remotely controlled from any fax, PC or computer that is connected its RS232 data port. Data speeds range from 2.4 to 9.6 full duplex.
Motorola, Inc.	Mr. Tim Hall	STU-III/A: The STU-III/A

8220 E. Roosevelt St. Scottsdale, AZ 85257	(602)441-4300	provides a direct interface to the extensive STU-II community over the switched telephone system and also interoperates with STU-II/A and other Allied STU-II equipment.
Motorola, Inc., GEG 8201 E. McDowell Rd. P.O. Box 1417 Scottsdale, AZ 85252	Mr. Tim Hall (602)441-2998	STU-III Cellular Telephone: A member of the STU-III family and interoperable with all versions of the STU-III; combines cellular mobile radio-telephone technology with advanced secure voice/ data communications. The unit includes a message center, integrated with the standard cellular handset, which can be conveniently mounted inside a vehicle and provides all STU-III functions including authentication/classification display. The cellular is used to secure TOP SECRET information and below, and to protect sensitive U.S. Government information. STU-II/B: The STU-II/B interoperates over switched telephone systems with Allied STU-II equipment and with STU-III/A terminals. The STU-II/B is for Foreign Military Sales (FMS) only. Direct sale of the STU-II/B terminal is not allowed. STU-III Enhanced Cellular: The STU-III Enhanced Cellular terminal combines cellular mobile radio-telephone technology with advanced secure voice/data communications, offering 2.4, 4.8, and 9.6 secure voice and 4.8/9.6 secure data. The unit includes a message center, integrated with the standard cellular handset, which can be conveniently mounted inside a vehicle and provides all

		STU-III functions including authentication/classification display. Type 1 Enhanced Cellular terminals are available in CONUS, CONUS briefcase and CONUS/OCONUS SCT configurations. STU-III/R (Remote Control Interface: The STU-III/R provides red enclave subscribers with STU-III compatible secure communications in a rack-mounted, remote control line encrypting unit. When used in conjunction with a red switch or conferencing director, the STU-III/R allows users to conference STU-III terminals and have secure EPABX functions. STU-III/R interfaces can be applied to field, airborne and shipboard applications.
Cincinnati Electronics Corp. 2630 Glendale-Milford Road Cincinnati, OH 45241-3187	Ms. Susan Shelton (513)733-6100	AN/CSZ-4A (Miste II): Secure UHF/SATCOM LOS package with integrated COMSEC. System is fitted into a 5" x 13" x 19" briefcase and weighs 32 LBS. Provides half-duplex wideband/narrowband voice/data, secure UHF radio communications, and is interoperable with the KY-57/58 (VINSON) and KYV-5 (ANDVT) for UHF applications.
Motorola, Inc., GEG 8201 E. McDowell Rd. P.O. Box 1417 Scottsdale, AZ 85252	Ms. Vicki Beseke (602)441-2185	KG-94/94A: High Speed trunk/bulk encryption device operating between 9.6 Kbs and 13 Mbs; protects all classifications of digital traffic provides secure data and teleconferencing capabilities for military and civilian use; fits into 19-inch rack; uses common electronic fill devices devices; KG-94A designed for mobile tactical use.
* Communication Systems Technology, Incorp. 9740 Patuxent Woods Dr. Columbia, MD 21046	Mr. Robert E. Pfister (301)381-5080	
* Pulse Engineering, Inc. 12101 Indian Creek Court Beltsville, MD 20705	Mr. Dave Madsen (301)725-6677	
Group Technologies	Ms. Helen Neil	KG-194: A rack mounted unit,

Corporation 10901 Malcolm Mckinley Dr. Tampa, FL 33612	(813)872-6244	it is capable of digital voice and data encryption at rates from 9.6 Kb/s to 13 Mb/s by employing synchronous key generators for transmission and reception. It employs FIREFLY rekey technology which allows the development of a new and unique Traffic Encryption Key with a distant KG-194 without the on-line assistance of a third party.
* Communication Systems Technology, Incorp. 9740 Patuxent Woods Dr. Columbia, MD 21046	Mr. Robert E. Pfister (301)381-5080	
* Pulse Engineering, Inc. 12101 Indian Creek Court Beltsville, MD 20705	Mr. Dave Madsen (301)725-6677	
Group Technologies Corporation 10901 Malcolm Mckinley Dr. Tampa, FL 33612	Ms. Helen Neil (813)972-6244	KG-194A: A tactical version of the KG-194 that is suited for mobile communication systems requiring trunk encryption. An accessory kit is provided which can be utilized for either mounting the KG-194A directly into a 19" rack or provide bumper protection for bench mounting. It has the same electrical characteristics and capabilities as the KG-194, and is approved for use in securing all levels of traffic.
* Communication Systems Technology, Incorp. 9740 Patuxent Woods Dr. Columbia, MD 21046	Mr. Robert E. Pfister (301)381-5080	
* Pulse Engineering, Inc. 12101 Indian Creek Court Beltsville, MD 20705	Mr. Dave Madsen (301)725-6677	
Motorola, Inc. 8201 E. McDowell Rd. P.O. Box 1417 Scottsdale, AZ 85252	Mr. Phil Humphries (602)441-2873	KG-95: The KG-95 is a family of full duplex, fixed plant, bulk encryption/decryption key generators which are approved for all levels of traffic. The KG-95/1 is the general purpose version of the KG-95, capable of operating at any data rate between 10 and 50 Mb/s. The KG-95/2 operates only at the fixed DS-3 data rate of 44.736 MB/s and is fully compliant with AT&T specifications for DS-3 transmission and reception. The KG-95R consists of two KG-95/2's providing a hot spare capability.
* Communication Systems Technology, Incorp. 9740 Patuxent Woods Dr. Columbia, MD 21046	Mr. Robert E. Pfister (301)381-5080	
Harris Corporation Military and Aerospace Div. P.O. Box 883 Melbourne, FL 32902-0883	Mr. Steve Robilard (407)729-5528	Ricebird: U-ALV and U-ARV: Satellite

		Command Encryption/Decryption and Authentication or a Telemetry Encryption/Decryption microcircuit. Advanced versions of the KG-46, KG-57 and are approved for the protection of Commercial, Civil, and DoD Satellite Systems. U-ALW and U-ARW: Satellite Mission data Encryption/ Decryption microcircuit. Advanced versions of the KG-43, and KG-44 equipments. U-ALX and A-ARX: Satellite Rekey Microcurcuit. This microcircuit provides an over-the-Air Electronic Rekey capability for future/ advanced versions of our satellite equipments.
Hughes Aircraft, Co., Microelectronics Systems Division 29947 Avenida de las Banderas Rancho Santa Margarita, CA 92688-7000	Mr. Al Rupp (714)858-6538	IDOCS: The IDOCS provides intrusion alarm monitoring, detection and annunication to secure a fiber optic link for transmission of all levels of classified information at a data rate of 6 to 13 MHz (factory set frequency) up to 1.5 kilometers.
Hughes Aircraft Co., Space & Comm. Group Building S41/MS B327 Los Angeles, CA 90009	Mr. Richard Hollis (213)647-4653	KI-23: System for satellite command link authentication and protection, composed of a KIT-23 for ground station command encryption and a KIR-23 for satellite decryption and authentication.
MYKOTRONX, Inc. 357 Van Ness Torrance, CA 90501	Mr. John Droge (213)533-8100	
General Electric Company Astrospace Electronics Division P.O. Box 8555 Philadelphia, PA 19101	Mr. Prafuz Patel (215)354-2774	
Space System/Loral	Mr. Travis Cole	KI-23: Continued

3825 Fabian Way Palo Alto, CA 94303	(415)852-5147	
MYKOTRONX, Inc. 357 Van Ness Way Torrance, CA 90501	Mr. John Droge (213)533-8100	KI-23 T/R MICROCIRCUIT: Satellite comand encryption/ decryption and authentication microcircuit endorsed for the protection of the command uplinks of commercial, civil, and DoD satellite systems. Advanced version of the KI-23.
LSI Logic Corp. 48660 Kato Road MSK-304 Fremont, CA 94538	Mr. James Lawrence (408)433-8273	
MYKOTRONX, Inc. 357 Van Ness Way Torrance, CA 90501	Mr. John Droge (213)533-8100	MYK-6: Satellite telemetry/ data encryption/decryption microcircuit at 1 bs to 20 Mbs.
Intel Systems II, Inc. 2402 W. Beardsley Phoenix, AZ 85027	Mr. Steve Nance (602)869-3741	TEPACHE iKGM-100: One of NSA's standard embedded COMSEC products. Fully Compliant with NSA's standard DS-69; used for computer/data key generator modules for use in computer applications including link, file protection, network communications security in host terminals, workstations, and smart peripherals. TEPACHE is a highly flexible, asynchronous module with a microprocessor style interface, endorsed for integration in devices to be used to secure U.S. Government information classified TOP SECRET and below and to protect sensitive U.S. Government information.
INTEL Systems II, Inc. 2402 W. Beardsley Phoenix, AZ 85027	Mr. Richard Rasmussen (602)869-4444	TEPACHE PRIME: The module is based on Data Standard 169, the module provides the endability to handle Secure Data Network Systems (SDNS) product-generate, distribute and consume key material.
LSI Logic Corporation 1551 McCarthy Blvd. Milpitas, CA 95035	Mr. Bruce Parsons (408)433-4136	KG-46 Microcircuit: Advanced version of the KG-46 data encryption/decryption unit for space application. The KG-46

		Microcircuit, designated the LSI-6, is remotely rekeyable and will operate up to 20 Mbs.
Magnavox Advanced Products and Systems Co. 2829 Maricopa St. Torrance, CA 90503	Mr. Ken Devanny (213)618-7077	Precise Positioning Service Security Module (PPS-SM) MX617510: This module is to be embedded into a Global Positioning System (GPS) host application. It allows authorized users access to the Precise Positioning Service of GPS while maintaining the host application as unclassfied, but controlled in accordance with NTISSI 3006 when keyed.
Stanford Telecommunications 2421 Mission College Blvd. Santa Clara, CA 95054	Mr. Howard Gannes (408)980-5630	
Rockwell International Corp., Collins Gov't Avionics Division 400 Collins Rd. NE Cedar Rapids, IA 52498	Mr. James Arnold (319)395-5294	
Motorola, Inc., GEG 8201 E. McDowell Rd. Mail Drop H-2289 Scottsdale, AZ 85252	Mr. Joseph Marino (602)441-5827	Network Encryption System: The NES protects information classified TOP SECRET and below over both local area networks (LANs) and wide area networks (WANs). It has fully loadable software for ease in changing or updating network protocols. The NES features fully electronic key distribution and is compatible with Secure Data Network Systems (SDNS) standards.
Motorola, Inc., GEG 8201 E. McDowell Rd. P.O. Box 1417 Scottsdale, AZ 85252	Mr. Dave Kohler (602)441-2756	INDICTOR: The Miniature Voice/Data Key Generator Module, Type 1, is a single monolithic chip and an NSA Standard Product. Compliant with the NSA's Data Standard 68; the INDICTOR may be used in voice/data key generator applications in hand held radios and telephones. INDICTOR is traffic compatible with the KY-57/58, KY-99, KYV-5 (ANDVT), KOV-1. (SINCGARS), KYV-2A/B, WINDSTER, the STU-III, and certain KG-84 applications. The INDICTOR is used to

		secure information classified TOP SECRET and below, and to protect sensitive U.S. Government information.
Motorola, Inc., GEG Strategic Elec. Div. 2501 South Price Rd. Chandler, AZ 85248-2899	Mr. Bill Crook (602)732-3432 John Nelson (602) 732-3087	KIV-9: Spaceborne decryption unit designed for embedment in a Motorola S-Band Space Ground Link Subsystem receiver package or in a stand-alone box with power converter and interface module. Unit is also available as a single-unit "slice" for custom applications. KGV-46: It is an embedment application of the RICEBIRD LSI chip into an assembly, or slice, which will perform an encryption function for the Motorola space groundlink satellite subsystems (SGLS) transmitter.
Motorola, Inc. 1701 McCormick Drive Landover, MD 20785	Mr. Steve Reddick (608)576-3519	FASCINATOR EQUIPPED MCX100, MX300-S, PX 300S, SYNTOR 9000, SYNTOR X9000E, SPECTRA, and SABER Radios, and the Portable Repeater: The FASCINATOR Secure Voice Module (SVM) product line is a half-duplex 12 KBs serial encryption device that operates in the synchronous mode. Radios which employ the SVM have a secure voice and plaintext mode. The SVM can be purchased in new MCX100 and MX300 radios, and the Portable Repeater or as part of a retrofit kit for the same radios and the repeater.
Motorola, Inc. 8201 E. McDowell Rd. P.O. Box 1417 Scottsdale, AZ 85252	Mr. Dave Kohler (602)441-2756	Sunburst II Processor: A portable narrowband/wide-band voice/data encryptor that features the INDICTOR encryption module. It will provide half-duplex secure voice and data over radio and wireline

		media for tactical operations. Sunburst II is a secure only unit with no plaintext bypass.
PE Systems, Inc. 5520 Cherokee Ave. Alexander, VA 22312	Mr. Donald Binder (703)642-9300	GILLAROO: A full slot encryption board that provides secure point-to-point and Electronic Mail capabilities for IBM and IBM compatible PC's. GILLAROO is asynchronous, and operates at user-selective data rates ranging from 110 to 9600 baud. GILLAROO is endorsed to protect SECRET and below information. PE Systems is authorized to accept new orders up to 31 December 1993.
PE Systems, Inc. 5520 Cherokee Ave. ALexandria, VA 22312	Mr. Donald Binder (703)642-9300	GUARDSMAN 100T: TEMPEST-approved ancillary device that contains the NSA endorsed GILLAROO as its cryptologic component. The GUARDSMAN allows "stand-alone" GILLAROO connectivity via RS-232 interface to the user PC serial port. It also has identical features, and is interoperable with the GILLAROO. The GUARDSMAN can be connected to both IBM and non-IBM compatible PC's as well as mainframe computers. PE Systems is authorized to accept new orders up to 31 December 1993.
Racal Communications, Inc. 5 Research Place Rockville, MD 20850	Mr. Robert Hall (301)948-4420	PRC6515 (EC): - INDICTOR based handheld radio, endorsed up through TOP SECRET, 12 Kbs, Federal Standard 1023 Compatible.
Scope, Inc. 1860 Michael Faraday Dr. Reston, VA 22090	Mr. Jim McCauley (703)471-5600	HNF-81-1/2 Frames: Facility rack adaptor for the KG-81 and KG-94 trunk encryption devices which provides mechanical and electrical connections to the using facility.

General Electric Aerospace Government Communications Systems Department Front and Cooper St. Camden, NJ 08102	Mr. John Tchou (609)338-3760	KY-90, KGX-93, HGF-93, KG-82, HGF-94, KT-93, ST-34, KY-68, HYP-71: SUPPORT SWITCHED tactical communications systems; KY-68 telephone terminals and associated systems ancillaries provide encryption/decryption of all level of classification of voice or data traffic. Sales are limited to prime contractors involved in the Mobile Subscriber Equipment Program.
Rockwell International Microelectronics Research & Dev. Center 4311 Jamboree Road M/S 501-377 Newport Beach, CA 92660	Mr. William Mavity (714)833-4133	Monolithic Randomizer: Produces a random binary bit Stream which is endorsed for use in communications security equipment that requires a randomizer in order to secure U.S. Government information classified TOP SECRET and below.
Simpact Associates, Inc. 12007 Sunrise Valley Dr. Reston, VA 22091	Mr. Michael Ulrich (703)758-0190	SSP3110: Data Storage Encryptor to secure U.S. Government information classified TOP SECRET and below. Using a government supplied algorithm, the SSP3110 encrypts information received over the Small Computer Interface bus from a host computer or file server and writes and encrypted information to a designated media storage device.
Teledyne Electronics 649 Lawrency Dr. Newbury Park, CA 91320	Mr. Emmett Dunlap (805)498-3305	KI-1C: COMSEC unit for Mark XII Identification Friend or Foe system; comprises two major subsystems, Interrogators and Transponders, KIR-1A/C and KIT-1A/C, respectively; the KI-1C is a technological roll over of the KI-1A, and utilizes Electronic Keying.
Hazeltine Corp. 450 E. Pulaski Rd. Greenlawn, NY 11740	Mr. Robert Fischer (516)351-4116	
Allied Signal Corp. Bendix Comm. Div. 1300 E. Joppa Rd.	Mr. Al Horning (301)583-4000	

Baltimore, MD 2120

Teledyne Electronics 649 Lawrence Dr. Newbury Park, CA 91320	Mr. Emmett Dunlap (805)498-3305	KIV-3: Designed to operate in conjunction with a combined Interrogator/Transponder to provide Mode 4 operation in the MARK XII Identification Friend or Foe System; incorporates 3-micron LSI technology in combining both the function of the KIR-1C and KIT-1C into a small, light weight module; keyed via the common fill devices, KOI-18 and KYK-13.
TRW/EPI 3650 N. Nevada Ave. Colorado Springs, CO 80907	Mr. John Cramer (719)577-8152	KL-43C, D and E: Off-line alphanumeric encrypt/decrypt device with challenge/reply authentication. The KL-43E is the large keyboard version. The KL-43C is a small ruggedized version with two message buffers and additional communications features.
Ultron Labs Corp. 1601 Research Boulevard Rockville, MD 20850	Mr. John Politis (301)251-4960	Ultron Crypto-Engine: COMSEC module for use in securing TOP SECRET information and below, and to protect sensitive U.S. Government information; designed to facilitate the integration of cryptography into end-item devices designed for NSA endorsement for use in various data applications.
UNISYS P.O. Box 517 Paoli, PA 19301	Mr. Donald Wilson (215)648-2337	KOI-18: Fill device, lightweight, general purpose tape reader, accepts standard one-inch wide tape.
UNISYS P.O. Box 517 Paoli, PA 19301	Mr. Donald Wilson (215)648-2337	KYK-13: Fill device, lightweight, battery-operated, digital data storage for six keys; will transfer keys to other equipment by direct connection or by fill cable.

UNISYS P.O. Box 517 Paoli, PA 19301	Mr. Donald Wilson (215)648-2337	KYX-15A: Fill device, net control device; can provide remote keying distribution; can store up to 16 keys.
Wang Laboratories One Industrial Ave. Mail Stop 013-390 Lowell, MA 01851	Mr. Lewis Collins (508)967-5661	Trusted Interface Unit (TIU): The TIU-1 is a stand-alone device that protects information classified TOP SECRET and below between hosts having IEEE 802.3 or Ethernet interfaces to broadband, baseband, or fiber-optic Local Area Networks (LANs). The TIU-1 also protects classified information for hosts across Wide Area Networks (WANs) by implementing DoD Internet Protocols (IP) and accessing commercial IP gateways based on pairwise keying relationships between TIU-1s.
Xerox Corp. 7900 W. Park Drive 4th Floor McLean, VA 22102	Mr. Frank Presson (703)442-6777	XEU: Endorsed to secure U.S. Government information classified through TOP SECRET level on Local Area Networks. Protects security of information by acting as bridge between processor it serves and network. Using Government supplied algorithm, XEU encrypts information flowing from network to processor. The XEU can be used with networks and equipment which conform to the IEEE 802.3 standard.

TYPE 2 PRODUCTS:

AT&T Technologies Division 1120 20th Street, N.W. Washington, D.C. 20036	Mrs. Kathleen O'Rourke (202)457-3613	DS-3 Encryptor: Protects security of voice, data, or video channels in any standard DS-3 (44.736 Mbs) signal carried over digital radio, coaxial cable, satellite, or lightwave transmission facility. In these applications, the DS-3 encryptor will protect sensitive U.S. Government information.
Cylink Corporation 3091 Holcomb Bridge Road STE. F1 Norcross, GA 30071	Mr. David Hammond (404)662-5627	
Allied Signal Corp. Bendix Comm. Div. 1300 E. Joppa Rd. Baltimore, MD 21204	Mr. Allan Horning (301)859-4493	ST-58: Test equipment for VINSON, KG-84/84A/84C, and Common Fill Devices; modular in construction and consists of three separate units; the top section is the general computer containing the main memory, it is used in conjunction with two test adapters: X-APA which tests the VINSON and Common Fill Devices and the Z-APD which tests the KG-84/84A/84C and Common Fill Devices. The ST-58 designed for a controlled, fixed plant environment.
Racal-Guardata, Inc. 480 Spring Park Place Suite 900 Herndon, VA 22070	Mr. Paul Jones (703)471-0892	Low-Cost Encryption/Authentication Device (LEAD): LEAD is endorsed for the authentication of system users and the protection of sensitive unclassified U.S. Government information on terminal-to-host and terminal-to-network access lines. A DoD waiver of FIPS 46-1 and FIPS 140 has been granted to allow the use of LEAD to protect sensitive unclassified computer information on DoD applications. The GSA has offered to pursue such a waiver on behalf of Civil agencies if so requested.
Pailen-Johnson 1370 Piccard Drive Rockville, MD 20850	Mr. William Pailen (301)948-5726	
Litronics Industries, Inc. 2950 Redhill Ave. Costa Mesa, CA 92715	Mr. Paul Johnson (714)545-6649	

Harris Corp. Custom Integrated Circuits Div. (HCICD) P.O. Box 9100 Melbourne, FL 32902	Mr. Steve Robillard (407)729-5528	Cypher I: CMOS data encryption integrated circuit. NOTE: This item is available only to those companies that intend to integrate cryptography into an end-item product, and have established a formal working relationship with NSA via a contract, the Commercial COMSEC Endorsement Program, or the User Partnership Program.
Rockwell International Microelectronics Research & Dev. Center 4311 Jamboree Road M/S 501-377 Newport Beach, CA 92660	Mr. William Mavity (714)833-4133	Monolithic Randomizers: Produces a random binary bit stream which is endorsed for use in communications security equipment that requires a randomizer in order to protect sensitive U.S. Government information.
Simpact Associates, Inc. 12007 Sunrise Valley Dr. Reston, VA 22091	Mr. Michael Ulrich (703)758-0190	BULLETPROOF: One of NSA's standard embedded COMSEC products. Fully compliant with NSA's standard DS-72; used for computer/data key generator modules for use in computer applications including link, file protection, network communications security in host terminals, workstations, and smart peripherals. BULLETPROOF is a highly flexible, asynchronous module with a microprocessor style interface, endorsed for integration in devices to be used to protect sensitive, unclassified U.S. Government information.

POTENTIAL CRYPTOGRAPHIC PRODUCTS LIST

The NSA Potential Cryptographic Products List contains the names of those companies and their respective products that have been accepted into the Commercial COMSEC Endorsement Program (CCEP) through the signing of a Memorandum of Understanding. This means the NSA and the company will be working together on the successful development, evaluation, security endorsement, and production of the company's product under the terms of the CCEP. When a product achieves NSA security endorsement, it will then be placed on the NSA Endorsed Cryptographic Products List.

Information beyond that contained in this list may be considered by the company to be proprietary. Prospective customers for these products are encouraged to contact the listed companies for additional details.

Comments and corrections regarding the Potential Cryptographic Products List may be directed to:

DIRECTOR
National Security Agency
ATTN: X51
Ft. George G. Meade, MD 20755-6000

COMPANY NAME	GENERIC PRODUCT	VENDOR POC & NUMBER
Allied Signal Corp. Bendix Comm. Div. 1300 East Joppa Rd. Baltimore, MD 21204	Identification Friend/Foe System	Mr. Richard Gonzales (301)583-4497
Allied Signal Corp. Bendix Comm. Div. 1300 East Joppa Rd. Baltimore, MD 21204	Personal Computer Communication Link Encryptor	Mr. Al Horning (301)583-4493
Aydin Vector Division P.O. Box 328 Newtown, PA 18940	Telemetry Encryption Support Module	Mr. Harold Gilje (215)968-4271
Base Ten Systems, Inc. One Electronics Drive P.O. Box 3151 Trenton, NJ 0861	Embeddable COMSEC Modules (TEPACHE and TEPACHE PRIME)	Mr. Jack Kelly (609)586-7010
Boeing Aerospace P.O. Box 3999 Seattle, WA 98124-2499	MLS Local Area Network with COMSEC	Mr. Ken Takeuchi (206)773-0628
General Electric Comp. P.O. Box 8555 Philadelphia, PA 19101	Embeddable KI-37 is rad-hard space COMSEC chip set.	Mr. Larry Newman (215)354-5447

Harris Corp., Custom Integrated Circuits Div. P.O. Box 883 Melbourne, FL 32901	Monolithic Randomizer	Mr. Stephen Robillard (407)729-5528
Harris Corp., 1201 E. Abington Drive #300 Alexandria, VA 22314	Standard Key Management Module	Mr. Jim Wellington (703)739-1934
Harris Corp., RF Communications 1680 University Avenue Rochester, NY 14610	Embeddable COMSEC Module (WINDSTER)	Mr. Chris Fedde (716)244-5830
Hughes Aircraft Co., Ground Systems Group P.O. Box 3310 Fullerton, CA 92634	Monolithic Randomizer	Mr. George Hume (714)441-9987
Loral Conic 9020 Balboa Ave. San Diego, CA 92123	Secure Pulse Code Modfulation System (SPMS-440)	Mr. Ron Bergfors (619)279-0411
Loral Conic 9020 Balboa Ave. San Diego, CA 92123	KG-68 Telemetry Support	Mr. Ron Bergfors (619)279-0411
McDonnell Douglas 1801 East St. Andrew Place Santa Ana, CA 02705-6520	IDOCS	Mr. James Kidd (714)566-5912
Microcom Corp., Aerospace Telecommunications Div. 965 Thomas Dr. Warminister, PA 18974	Support Package for KG-66 and KGV-68	Mr. Bill Barsby (215) 672-6300
Motorola, Inc. Gov. Electonics Group 8201 E. McDowell Rd. Scottsdale, AZ 85252	Embeddable COMSEC Module (WINDSTER)	Ms. Vicki Beseke (602)441-2185
Motorola, Inc. Gov. Electronics Group 8201 E. McDowell Rd. Scottsdale, AZ 85252	Standard Key Management Module	Mr. David Kohler (602)441-2756
Motorola, Inc. Gov. Electronics Group 8201 E. McDowell Rd. Scottsdale, AZ 85252	Single Chip Key Generator	Mr. Roger Curren (602)732-2235

Science Applications International Technology 4224 Campus Point Court San Diego, CA 92121	Secure Computer	Mr. A. L. Dean, Jr. (619)450-2288
TRW/EPI, Inc. 3650 N. Nevada Ave. Colorado Springs, CO 80907	Data Encryption (Embedded KI-23)	Mr. John Cramer (719)577-8152
Ultron Labs 1601 Research Blvd. Rockville, MD	Serial Encryption Unit	Mr. John Politis (301)251-4960

INTRODUCTION TO THE NSA-ENDORSED DATA ENCRYPTION STANDARD (DES) PRODUCTS LIST

The Data Encryption Standard (DES) is a cryptographic algorithm which NSA formally designated in 1978 as appropriate for protecting "unclassified national security-related telecommunications." The DES algorithm continues to be an acceptable means for protecting what is now defined as "sensitive unclassified U.S. Government or government-derived information."

Under the auspices of the DES Endorsement Program, NSA has endorsed DES-based telecommunications protection equipment developed by U.S. manufacturers at their expense to meet the general security requirements specified by Federal Standard 1027. The DES Endorsement Program has been successful in providing a variety of DES-based equipment suitable for data link encryption, voice radio encryption and satellite system protection.

This chapter contains a technical description of each NSA-endorsed DES equipment along with requisite procurement data. Policies and procedures governing DES key material usage and ordering are also covered.

GOVERNMENT ENDORSED DATA ENCRYPTION STANDARD (DES) EQUIPMENT

THE INFORMATION COVERED HERE IS INTENDED TO MAKE YOUR SELECTION AND IMPLEMENTATION OF DES-BASED COMMUNICATIONS PROTECTION EQUIPMENT AS EASY AS POSSIBLE. THE LIST OF DATA ENCRYPTION STANDARD (DES) EQUIPMENTS ENDORSED BY THE NATIONAL SECURITY AGENCY AS MEETING FEDERAL STANDARD 1027 (FS-1027) ALONG WITH DES KEY MATERIAL ORDERING PROCEDURES IS PROVIDED FOR THAT PURPOSE.

TO VERIFY A VENDOR'S CLAIM THAT HIS DES EQUIPMENT IS "NSA ENDORSED," WE RECOMMEND THAT YOU ASK THE MARKETING REPRESENTATIVE FOR A COPY OF THE ENDORSEMENT CERTIFICATE THAT NSA PROVIDES THE MANUFACTURER. THIS CERTIFICATE INCLUDES THE NAME AND MODEL NUMBER OF THE VENDOR'S ENDORSED DES EQUIPMENT AND THE U.S. GOVERNMENT ENDORSEMENT IDENTIFICATION (USGEID) NUMBER ASSIGNED TO THAT EQUIPMENT.

THE EQUIPMENTS ARE CATEGORIZED BY VOICE, LOW SPEED (64 Kbps or less), HIGH SPEED (greater than 64 Kbps), SATELLITE, INFORMATION STORAGE AND KEY MANAGEMENT.

THE NSA DES ENDORSEMENT PROGRAM OFFICIALLY ENDED 1 JANUARY 1988. NSA WILL CONSIDER EVALUATING MODIFICATIONS TO PREVIOUSLY ENDORSED UNITS ONLY IF THE PROPOSED MODIFICATIONS DO NOT AFFECT THE SECURITY FUNCTIONALITY OF THE UNITS. ANY MODIFICATIONS TO ENDORSED DES UNITS MUST BE EVALUATED BY NSA TO MAINTAIN THE ENDORSEMENT.

ENDORSED DES PRODUCTS CURRENTLY IN INVENTORY MAY STILL BE PROCURED AND APPLIED AND WILL CONTINUE TO BE AN ACCEPTABLE MEANS OF PROTECTING SENSITIVE UNCLASSIFIED U.S. GOVERNMENT INFORMATION. NSA WILL CONTINUE TO PROVIDE KEY MATERIAL FOR EXISTING AND NEW GOVERNMENT APPLICATIONS OF ENDORSED DES PRODUCTS.

NEW TELECOMMUNICATIONS PRODUCTS WHICH ARE ENDORSED FOR USE TO PROTECT SENSITIVE UNCLASSIFIED U.S. GOVERNMENT INFORMATION ARE BEING DEVELOPED UNDER THE NSA COMMERCIAL COMMUNICATIONS SECURITY (COMSEC) ENDORSEMENT PROGRAM (CCEP). SUCH PRODUCTS WILL OFFER ALTERNATIVES TO THE USE OF ENDORSED DES-BASED PRODUCTS FOR THIS LEVEL OF PROTECTION.

TECHNICAL INQUIRIES PERTAINING TO DES APPLICATIONS SHOULD BE DIRECTED TO THE FOLLOWING TELEPHONE NUMBERS:

DES RADIO: (301) 859-4522
DES DATA : (301) 859-4471

NOTE: ANY DES EQUIPMENT THAT REQUIRES KEY LOADING VIA A KOI-18 FILL DEVICE CAN ALSO BE LOADED UTILIZING A GENERAL PURPOSE TAPE READER, WHICH IS A NONCONTROLLED CRYPTOGRAPHIC ITEM (CCI) VERSION OF THE KOI-18.

NSA-PRODUCED DES KEY MATERIAL MUST BE USED ONLY IN ENDORSED EQUIPMENTS WHICH ARE IMPLEMENTED IN COMMUNICATIONS SYSTEMS TO PROTECT SENSITIVE UNCLASSIFIED U.S. GOVERNMENT INFORMATION. THE FOLLOWING INFORMATION IS REQUIRED FOR ORDERING NSA-PRODUCED DES KEY MATERIAL FOR GOVERNMENT APPROVED/ENDORSED EQUIPMENT. THE LEAD TIME NECESSARY TO PRODUCE THE KEY IS ONE HUNDRED TWENTY (120) DAYS OR MORE PRIOR TO THE REQUIRED IN-PLACE DATE.

DATA REQUIRED FOR ORDERING DES KEY MATERIAL

1. NATURE OF REQUEST (NEW REQUIREMENT, CHANGE IN REQUIREMENT, OR RESUPPLY)
2. USE (OPERATIONAL, MAINTENANCE, TRAINING, TESTING, OR CONTINGENCY)
3. SYSTEM DESIGNATION AND NETWORK STRUCTURE
4. EQUIPMENT NOMENCLATURE TO INCLUDE "USGEID NUMBER"
5. KEY MANAGEMENT APPROACH (MANUAL, KEY INDEXING, DOWN-LINE LOADING)
6. KEY LOADING TECHNIQUE
7. KEY MATERIAL FORMAT (PRINTED/PUNCHED/FLOPPY DISKETTE)
8. CRYPTOPERIOD
9. NUMBER OF KEY SEGMENTS
10. COPIES PER KEY SEGMENT
11. NUMBER OF EDITIONS
12. COPIES PER EDITION
13. POINT OF CONTACT: NAME, COMPLETE MAILING ADDRESS, AND COMPLETE TELEPHONE NUMBER
14. COMSEC ACCOUNT NUMBER
15. DESIRED IN-PLACE DATE
16. CONTROLLING AUTHORITY
17. DEFENSE COURIER SERVICE ADDRESS (IF APPLICABLE)

ITEMS 1,2,4,11,12 AND 14 ARE MANDATORY ITEMS

REQUESTS FOR DES KEY MATERIAL FOR U.S. GOVERNMENT CONTRACTORS MUST INCLUDE A STATEMENT CERTIFYING THAT THE KEY MATERIAL WILL BE USED TO SUPPORT THE ENCRYPTION OF SENSITIVE UNCLASSIFIED U.S. GOVERNMENT AND GOVERNMENT-DERIVED INFORMATION AND THAT IT WILL BE SAFEGUARDED AND CONTROLLED IN ACCORDANCE WITH NTISSI 3005.

REQUESTS FOR DES KEY MATERIAL SHOULD BE SUBMITTED TO:

NATIONAL SECURITY AGENCY
ATTN: Y13
FORT GEORGE G. MEADE, MD 20755-6000

NOTE: Y13, OFFICE OF COMSEC PRODUCTION AND CONTROL, MUST ALSO BE NOTIFIED WHEN THE CRYPTONET IS INITIALLY IMPLEMENTED TO ENSURE AUTOMATIC RESUPPLY OF KEY MATERIAL.

POINTS OF CONTACT FOR NSA FS-1027 DES ENDORSED EQUIPMENTS

VOICE RADIO EQUIPMENT (2 vendors in alphabetical order)	USGEID NUMBER	PAGE NO.
1. Mr. Dan Lynch General Electric Company 1680 Mountain View Road Lynchburg, VA 24502 Telephone: (804) 528-7458	00000021 00000022 00000026 00000030 00000033 00000034 00000036	2-62 2-62 2-62 2-63 2-63 2-63 2-64
2. Mr. Phil Lerner Motorola Incorporated 1701 McCormick Drive Landover, MD 20785 Telephone: (301) 386-5000	00000001 thru 00000010 00000012 00000020 00000032	2-51 thru 2-58 2-59 2-59 2-63
LOW SPEED DATA EQUIPMENT (7 vendors in alphabetical order)		
1. Mr. Phil Bender Computer Sciences Corporation 4600 Powder Mill Road Beltsville, MD 207052 Telephone: (301) 572-8443	00000044	2-11
2. Mr. David Hammond CYLINK P. O. Box 920459 Norcross, GA 30092 Telephone: (404) 662-5627	00000039	2-16
3. Mr. John Gindling Datotek 3801 Realty Road Dallas, TX 72544 Telephone: (214) 241-4491	00000028	2-22
4. Ms Suzanne Harper Digitech Telecommunications, Inc. 342 Madison Avenue New York, NY 10173 Telephone: (212) 557-7230	00000045	2-24
5. Mr. Frank Dolan Paradyne Corporation 1577 Spring Hill Road Vienna, VA 22180 Telephone: (703) 448-0062	00000015	2-34

6.	Mr. Wayne Braunstein Racal-Milgo Incorporated 2000 M Street, NW Washington, DC 20036 Telephone: (202) 466-3940	00000016	2-36
7.	Mr. John Gill Technical Communications Corporation 100 Domino Drive Concord, MA 01742 Telephone: (617) 862-6035 *Includes Digital Voice Option	00000023 00000027 00000040*	2-45 2-43 2-49

HIGH SPEED DATA EQUIPMENTS
(3 vendors in alphabetical order)

1.	Mr. Brent Grotz California Microwave, Incorporated 990 Almanor Avenue Sunnyvale, CA 94086 Telephone: (408) 720-6571	00000011	2-9
2.	Mr. David Hammond CYLINK P. O. Box 920459 Norcross, GA 30092 Telephone: (404) 662-5627	00000025 00000035	2-20 2-18
3.	Mr. Dave Lastrico Hughes Network Systems 10790 Roselle Street San Diego, CA 92121 Telephone: (619) 453-7007 Ext. 4301	00000013 00000014 00000018	2-32 2-30 2-28

SATELLITE EQUIPMENT
(2 vendors in alphabetical order)

1.	Mr. Keith Dunford COMTEL P. O. Box 6005 Santa Maria, CA 93455 Telephone: (805) 928-2581	00000029	2-13
2.	Mr. Donald Marcopulos Fairchild Communications & Electronics Co. Fairchild Industries, Incorporated Germantown, MD 20874-1182 Telephone: (301) 428-6904	00000031	2-26

INFORMATION STORAGE

1. Atlantic Research Corporation
   formerly Systematics General Corporation 00000024 ----
   Model Number FES-100 (ACORN)
   has been discontinued.

KEY MANAGEMENT SYSTEM

1. Mr. Wayne Braunstein
   Racal-Milgo Incorporated 00000041 2-39
   2000 M Street NW
   Washington, DC 20036
   Telephone: (202) 466-3940

DATA EQUIPMENT INDEX BY USGEID NUMBER

USGEID NUMBER	COMPANY
00000011	CALIFORNIA MICROWAVE, INC.
00000013	HUGHES NETWORK SYSTEMS
00000014	HUGHES NETWORK SYSTEMS
00000015	PARADYNE CORPORATION
00000016	RACAL-MILGO INCORPORATED
00000018	HUGHES NETWORK SYSTEMS
00000019	(PRODUCT DISCONTINUED)
00000023	TECHNICAL COMMUNICATIONS CORPORATION
00000024	(PRODUCT DISCONTINUED)
00000025	CYLINK
00000027	TECHNICAL COMMUNICATIONS CORPORATION
00000028	DATOTEK
00000029	COMTEL (DIV. OF SPAR AEROSPACE LTD.)
00000031	FAIRCHILD COMMUNICATIONS & ELECTRONICS CO.
00000035	CYLINK
00000039	CYLINK
00000040	TECHNICAL COMMUNICATIONS CORPORATION
00000041	RACAL-MILGO INCORPORATED
00000044	COMPUTER SCIENCES CORPORATION
00000045	DIGITECH TELECOMMUNICATIONS, INC.

DATA EQUIPMENT INDEX BY COMPANY

1. Manufacturer Name

   CALIFORNIA MICROWAVE, INC.

2. Manufacturer Address

   990 ALMANOR AVENUE
   SUNNYVALE, CA. 94086

3. United States Government Endorsement Identification Number (USGEID)

   00000011

4. Vendor Model Number

   CALIFORNIA MICROWAVE VIDAR 5800 / CD-5800

5. Vendor Point of Contact

   MR. BRENT GROTZ, (408) 720-6571

6. Equipment Characteristics

   THE CD-5800 IS A BULK RATE ENCRYPTION DEVICE WHICH OPERATES AT SPEEDS FROM 19.2 KILOBITS TO 3.152 MEGABITS AND INTERFACES AT DS1/TARIFF 270 BELL FORMAT, CC1TT V.35, EIA RS422 OR EIA RS232C, AS EQUIPPED WITH OPTIONAL PLUG-IN UNITS TO THE BASIC CD-5800 ASSEMBLY.

7. Testing

   CALL VENDOR FOR INFORMATION

8. Alarm and Status Reporting

   CALL VENDOR FOR INFORMATION

9. Key Management Features/Key Distribution

   THE CALIFORNIA MICROWAVE CD-5800 REQUIRES FOR GOVERNMENT KEY MANAGEMENT APPLICATIONS, A KOI-18 AND SPECIAL CABLES TO LOAD THE DES KEY. THE DES KEY MUST BE ORDERED IN A PUNCHED PAPER TAPE FORMAT. THE CD-5800 IS SWITCH SELECTABLE FOR GOVERNMENT OR COMMERCIAL MODES OF KEY MANAGEMENT. QUESTIONS CONCERNING THE SPECIAL CABLES FOR THE KOI-18 OR KEY MANAGEMENT SHOULD BE DIRECTED TO CALIFORNIA MICROWAVE, BRENT GROTZ (408) 720-6571.

10. Key Loader

    KOI-18 WITH CABLES

11. Equipment Physical Security Features

CALL VENDOR FOR INFORMATION

12. Cost Range

$9,000 - $10,000

13. Availability

CALL VENDOR FOR INFORMATION

14. Leasing Option

CALL VENDOR FOR INFORMATION

15. Equipment Options

CALL VENDOR FOR INFORMATION

16. Misc. Descriptions

CALL VENDOR FOR INFORMATION

1. Manufacturer Name

COMPUTER SCIENCES CORPORATION

2. Manufacturer Address

4600 POWDER MILL ROAD
BELTSVILLE, MD 20705

3. United States Government Endorsement Identification Number (USGEID)

00000044

4. Vendor Model Number

SECOM 2010

5. Vendor Point of Contact

SALES & GENERAL INFORMATION: PHIL BENDER (301) 572-8443
TECHNICAL INFORMATION: DEAN RABENSTINE (301) 572-8716

6. Equipment Characteristics

BIT RATE	- SYNCHRONOUS UP TO 64 KBPS ASYNCHRONOUS 110, 300, 600, 1200, 2400, 4800, 9600, 19200 BPS
SIZE	- 8.5" W, 3.69" H, 9.25" D
WEIGHT	- LESS THAN 7 LBS.
POWER	- 120 VAC, 47-63 HZ, 0.05 AMPS
INTERFACES	- RS-232C
PROTOCOLS	- PROTOCOL TRANSPARENT (PHYSICAL LAYER)
ZEROIZE FEATURE	- MANUAL AND AUTOMATIC
DIAGNOSTICS	- DES S-BOX, DES CHECKWORD, ROM CHECKSUM, DISPLAY TEST
ENCRYPTION MODE	- CIPHER FEEDBACK
PROPAGATION DELAY	- SYNCHRONOUS 2 BITS PER DEVICE ASYNCHRONOUS 1 BIT PER DEVICE

7. Testing

AUTOMATIC SELF-TEST ON POWER UP, MANUAL TEST, DES S-BOX, DES CHECKWORD, KEY PARITY, ROM CHECKSUM, CONTINUOUS INPUT/OUTPUT CORRELATION DURING SECURE OPERATION.

8. Alarm and Status Reporting

EXTERNAL ALARM OUTPUT
16 CHARACTER FRONT PANEL STATUS DISPLAY

9. Key Management Features/Key Distribution

KEY INDEXING (ALSO SEE ITEM 16 BELOW).
NO KEY DISTRIBUTION CAPABILITIES

10. Key Loader

HEXADECIMAL KEY PAD
KOI-18 OR EQUIVALENT

11. Equipment Physical Security Features

MEETS FS 1027; TAMPER PROOFING, PICK RESISTANT LOCKS, INTEGRAL REAR PANEL U-BOLT.

12. Cost Range

CALL VENDOR FOR INFORMATION

13. Availability

CALL VENDOR FOR INFORMATION

14. Leasing Option

NONE AT PRESENT

15. Equipment Options

NONE

16. Misc. Descriptions

UNITS OPERATE IN MASTER/SLAVE RELATIONSHIP ON PHYSICAL LINK.
FOR DIAL-UP CONFIGURATIONS, MASTER CAN ACCOMMODATE UP TO 32 SLAVES WITH UNIQUE KEY SETS.

1. Manufacturer Name

COMTEL (DIVISION OF SPAR AEROSPACE LTD.)

2. Manufacturer Address

2811 AIRPARK DRIVE
SANTA MARIA, CALIFORNIA 93455
TEL: (805) 928-2581
TELEX: 467575
FAX: (805) 925-2540

3. United States Government Endorsement Identification Number (USGEID)

00000029

4. Vendor Model Number

CT-5000

5. Vendor Point of Contact

KEITH DUNFORD (805) 928-2581
DIRECTOR
MARKETING AND PROGRAMS

6. Equipment Characteristics

THE COMTEL CT-5000 DIGITAL ENCRYPTION SYSTEM PROVIDES EFFICIENT ENCRYPTION/DECRYPTION OF FULL DUPLEX DATA LINKS OPERATING AT RATES OF UP TO 64 MBPS. THE SINGLE 7 INCH X 19 INCH RACK MOUNTED UNIT WEIGHS SOME 40 LBS AND IS COMPLETELY SELF CONTAINED. POWER CONSUMPTION IS LESS THAN 100 WATTS TOTAL INCLUDING INTERNAL COOLING FANS. THE CT-5000 IS PRIMARILY DESIGNED TO PROVIDE EFFICIENT ENCRYPTION OF TIME DIVISION MULTIPLE ACCESS (TDMA) SATELLITE COMMUNICATIONS NETWORKS. OTHER VERSIONS OF THE CT-5000 WILL PROVIDE SIMILAR CAPABILITY FOR TERRESTRIAL (MICROWAVE) T3 DATA NETWORKS. THE COMTEL CT-5000 STORES MASTER KEYS IN A SOFTWARE CONTROLLED QUEUE, AND TO PREVENT ACCIDENTAL REUSE, EACH MASTER KEY LOCATION IS AUTOMATICALLY ZEROED WHEN A KEY IS REMOVED FROM STORAGE. THE KEYS ARE STORED IN A LIMITED VOLATILITY MEMORY WHICH PROTECTS THE STORED KEYS DURING POWER FAILURES.

7. Testing

AUTOMATIC SELF TEST AT POWER-ON, OTHER SELF TEST PROCEDURES ARE PROVIDED FOR THE CT-5000 SYSTEM THROUGH THE COMMON SIGNALING CHANNEL OF THE DATA NETWORK.

8. Alarm and Status Reporting

THE CT-5000 DES SYSTEM PROVIDES FRONT PANEL LED STATUS AND ALARM INDICATORS FOR:
1. POWER ON/OFF
2. BATTERY LOW
3. SYNCHRONIZATION
4. INTRUSION
5. KEY LOAD ERROR
6. PARITY

ALARM AND STATUS SIGNALING ARE ALSO PROVIDED FOR TRANSMISSION OVER THE COMMON SIGNALING CHANNEL TO A REMOTE CONTROL CENTER.

9. Key Management Features/Key Distribution

THE CT-5000 EMPLOYS TWO CLASSES OF KEYS:

A) MASTER KEY WHICH IS DISTRIBUTED FROM THE CENTRAL NSA SOURCE, MAINTAINED ON SITE IN SECURE STORAGE.

B) RANDOM SEQUENCE SESSION KEYS GENERATED BY THE PRIMARY NETWORK REFERENCE STATION AND TRANSMITTED TO THE OTHER PARTICIPATING NODES VIA THE CRYPTO CONTROL CHANNEL. THESE KEYS ARE REPLACED AT SHORT INTERVALS.

10. Key Loader

MASTER KEYS ARE LOADED INTO THE CT-5000 VIA THE ELECTRONIC INTERFACE SPECIFIED IN PARAGRAPH 3.2.1.2.OF FED-STD-1027. THE KEY LOADER IS A KOI-18 USING A PUNCHED PAPER TAPE FORMAT.

11. Equipment Physical Security Features

THE CT-5000 ENCLOSURE IS SECURED IN A STANDARD 19 INCH RACK MOUNT, WITH ALL REMOVABLE HARDWARE MADE INACCESSIBLE WHEN THE FRONT PANEL IS CLOSED AND LOCKED. PICK RESISTANT LOCKS ARE USED TO PHYSICALLY SECURE THE FRONT PANEL.

12. Cost Range

$25,000 PER UNIT NON-REDUNDANT CONFIGURATION.
$50,000 REDUNDANT CONFIGURATION
THIS INDICATES A COST OF $100,000 PER FULL DUPLEX FULLY REDUNDANT, 64 MBPS (OR T3) DATA LINK.

13. Availability

(ARO) - CURRENTLY 6 MONTHS

14. Leasing Option

UNDER REVIEW

15. Equipment Options

NONE

16. Misc. Descriptions

NONE

1. Manufacturer Name

CYLINK

2. Manufacturer Address

920 WEST FREMONT AVENUE
SUNNYVALE, CALIFORNIA 94087

3. United States Government Endorsement Identification Number (USGEID)

00000039

4. Vendor Model Number

CIDEC-LS (LOW SPEED ENCRYPTOR)

5. Vendor Point of Contact

DAVID HAMMOND
(404) 662-5627

6. Equipment Characteristics

SYNCHRONOUS DATA RATES UP TO 128 KBPS
ASYNCHRONOUS DATA RATES UP TO 19.2 KBPS
SELF-SYNCHRONIZING ENCRYPTION PROCESS
FULL DUPLEX, HALF-DUPLEX, SIMPLEX
NON-SWITCHED, DIAL-UP, MULTIDROP APPLICATIONS
PROTOCOL TRANSPARENT
RS232C, V.35, RS422, X.21/V.11
220 VAC, 115 VAC, 12 WATTS
2.5 H 8.5 W 16 D
9 POUNDS
MENU DRIVEN ATTRIBUTE SELECTION

7. Testing

TEST MODE INCLUDES: DIAGNOSTICS, ENCRYPTION, AND LOOPING TESTS

8. Alarm and Status Reporting

TWO LINES OF 20 CHARACTER LCD DISPLAY USED FOR STATUS, ALARM, AND PROGRAMMING MESSAGES
KEY LIST STATUS VIA FRONT PANEL DISPLAY
INTERNAL DATE/TIME STAMPED ALARM MESSAGES (99 EVENTS)
GENERAL ALARM LED INDICATES ACTIVE OR HISTORICAL ALARM EVENTS
AUXILIARY RS232 PORT ENABLES AN AUDIT OF ALL STATUS AND ALARM MESSAGES FROM THE ENCRYPTOR

9. Key Management Features/Key Distribution

IN GOVERNMENT MODE USERS LOAD KEYS MANUALLY VIA THE KEYBOARD, OR ELECTRONICALLY USING THE KOI-18 KEY LOADER. WHEN USING FULL OR HALF DUPLEX MODES WITH A NONSWITCHED LINE, USERS CAN LOAD KKs AND KDs. WHEN USING SIMPLEX MODE, THE UNIT AUTOMATICALLY USES KD ONLY. MANUAL KEY ENTRY OFFERS AN ADDITIONAL SECURITY FEATURE: SPLIT KEY KNOWLEDGE (FOR BOTH KK PAIRS AND KDs). THE CIDEC-LS CHECKS ALL NEWLY ENTERED KEYS AND ACCEPTS THEM ONLY IF THEY ARE SUITABLE. CONTACT FACTORY FOR FURTHER INFORMATION.

10. Key Loader

KOI-18 KEY LOADER

11. Equipment Physical Security Features

TAMPER PROOFING, DUAL PICK RESISTANT LOCKS, SECURE RACK MOUNT

12. Cost Range

CONTACT FACTORY (DEPENDENT ON QUANTITY)

13. Availability

DELIVERY: 30 DAYS ARO

14. Leasing Option

LEASING AVAILABLE (CONTACT FACTORY)

15. Equipment Options

SECURE DESK-TOP MOUNT, RACK MOUNTING KIT

1. Manufacturer Name

CYLINK

2. Manufacturer Address

920 WEST FREMONT AVENUE
SUNNYVALE, CALIFORNIA 94087

3. United States Government Endorsement Identification Number (USGEID)

00000035

4. Vendor Model Number

CIDEC-MS (MEDIUM SPEED ENCRYPTOR)

5. Vendor Point of Contact

DAVID HAMMOND
(404) 662-5627

6. Equipment Characteristics

SYNCHRONOUS DATA RATES FROM 1.2 KBPS TO 112 KBPS
SELF-SYNCHRONIZING ENCRYPTION PROCESS
FULL DUPLEX, POINT TO POINT LINKS, PROTOCOL TRANSPARENT,
INTERFACES:
RS-232C
CCITT V.35
RS-422
MENU DRIVEN ATTRIBUTES

7. Testing

TEST MODE INCLUDES: DIAGNOSTICS, ENCRYPTION, AND LOOPING TESTS

8. Alarm and Status Reporting

TWO LINE BY 40 CHARACTER LCD DISPLAY USED FOR STATUS, ALARM, AND INSTRUCTIVE MESSAGES
KEY LIST STATUS VIA FRONT PANEL DISPLAY
INTERNAL DATE/TIME STAMPED ALARM MESSAGES (99 EVENTS)
GENERAL ALARM LED INDICATES ACTIVE OR HISTORICAL ALARM EVENTS
AUXILIARY RS232 PORT ENABLES AN AUDIT OF ALL STATUS AND ALARM MESSAGES FROM THE ENCRYPTOR

9. Key Management Features/Key Distribution

KEY VARIABLE STORAGE VIA KOI-18 (INTERFACE CABLE AVAILABLE) OR VIA FRONT PANEL KEYPAD ENTRY. KEY LIST INDEXING OVER THE NETWORK IS ACCOMPLISHED BY AN NSA-APPROVED METHOD. THIS TECHNIQUE COUPLED WITH AUTOMATIC PROGRAMMED TIME CHANGE OF THE KEYS, ALLOWS FOR MORE FREQUENT KEY CHANGES IN A PRACTICAL MANNER.

10. Key Loader

KOI-18 KEY LOADER

11. Equipment Physical Security Features

TAMPER PROOFING, DUAL PICK RESISTANT LOCKS, SECURE RACK MOUNT

12. Cost Range

CONTACT FACTORY (DEPENDENT ON QUANTITY)

13. Availability

DELIVERY: 30 - 60 DAYS ARO

14. Leasing Option

LEASING AVAILABLE (CONTACT FACTORY)

15. Equipment Options

STANDARD CIDEC-MS IS EQUIPPED FOR 19 INCH RACK MOUNT AND 115 VAC OPERATION. OPTIONAL 23 INCH RACK MOUNT, 220 VAC OR -48 VDC AT NO ADDITIONAL CHARGE.

16. Misc. Descriptions

3.5 INCH HEIGHT, 17 INCH WIDTH, 17 INCH DEPTH
30 WATTS APPROXIMATE DISSIPATION
22 POUNDS

1. Manufacturer Name

CYLINK

2. Manufacturer Address

920 WEST FREMONT AVENUE
SUNNYVALE, CALIFORNIA 94087

3. United States Government Endorsement Identification Number (USGEID)

00000025

4. Vendor Model Number

CIDEC-HS (HIGH SPEED ENCRYPTOR)

5. Vendor Point of Contact

DAVID HAMMOND
ATLANTA, GA
(404) 662-5627

6. Equipment Characteristics

SYNCHRONOUS DATA RATES FROM 9.6 KBPS TO 7.0 MBPS
NO ERROR EXTENSION
FULL DUPLEX, POINT TO POINT LINKS, PROTOCOL TRANSPARENT INTERFACES:
DS2 (6.312 MBPS)
DS1 (1.544 MBPS)
CCITT V.35
RS-422, V.11, G.703(2.048MBPS)
(1 X 1) REDUNDANCY SWITCH CAPABILITY
MENU DRIVEN ATTRIBUTES

7. Testing

TEST MODE INCLUDES: DIAGNOSTICS, ENCRYPTION, AND LOOPING TESTS

8. Alarm and Status Reporting

TWO LINE BY 40 CHARACTER LCD DISPLAY USED FOR STATUS, ALARM, AND INSTRUCTIVE MESSAGES
KEY LIST STATUS VIA FRONT PANEL DISPLAY
INTERNAL DATE/TIME STAMPED ALARM MESSAGES (99 EVENTS)
GENERAL ALARM LED INDICATES ACTIVE OR HISTORICAL ALARM EVENTS
AUXILIARY RS232 PORT ENABLES AN AUDIT OF ALL STATUS AND ALARM MESSAGES FROM THE ENCRYPTOR

9. Key Management Features/Key Distribution

KEY VARIABLE STORAGE VIA KOI-18 (INTERFACE CABLE AVAILABLE) OR VIA FRONT PANEL KEYPAD ENTRY. KEY LIST INDEXING OVER THE NETWORK IS ACCOMPLISHED BY AN NSA-APPROVED METHOD. THIS TECHNIQUE COUPLED WITH AUTOMATIC PROGRAMMED TIME CHANGE OF THE KEYS, ALLOWS FOR MORE FREQUENT KEY CHANGES IN A PRACTICAL MANNER.

10. Key Loader

KOI-18 KEY LOADER

11. Equipment Physical Security Features

TAMPER PROOFING, DUAL PICK RESISTANT LOCKS, SECURE RACK MOUNT

12. Cost Range

CONTACT FACTORY (DEPENDENT ON QUANTITY)

13. Availability

DELIVERY: 30 - 60 DAYS ARO

14. Leasing Option

LEASING AVAILABLE (CONTACT FACTORY)

15. Equipment Options

STANDARD CIDEC-HS IS EQUIPPED FOR 19 INCH RACK MOUNT AND 115 VAC OPERATION. OPTIONAL 23 INCH RACK MOUNT, 220 VAC OR -48 VDC AT NO ADDITIONAL CHARGE.

16. Misc. Descriptions

3.5 INCH HEIGHT, 17 INCH WIDTH, 17 INCH DEPTH
50 WATTS APPROXIMATE DISSIPATION
32 POUNDS

1. Manufacturer Name

DATOTEK

2. Manufacturer Address

3801 REALTY ROAD
DALLAS, TEXAS 72544
(214) 241-4491

3. United States Government Endorsement Identification Number (USGEID)

00000028

4. Vendor Model Number

DATOTEK CIPHERBIT 1027-13

5. Vendor Point of Contact

JOHN GINDLING (214) 241-4491

6. Equipment Characteristics

THE DATOTEK CIPHERBIT 1027-13 IS A LINK ENCRYPTION DEVICE THAT IS PROTOCOL TRANSPARENT AND CAN OPERATE IN POINT-TO-POINT OR MULTIPOINT CIRCUITS. THIS EQUIPMENT CAN OPERATE IN THE SYNCHRONOUS MODE UP TO 64 KBPS OR IN THE ASYNCHRONOUS MODE UP TO 19.6 KBPS. THE CIPHERBIT 1027-13 CAN REMOTELY CHANGE KEYING VARIABLES THRU A METHOD CALLED "KEY INDEXING".

7. Testing

CALL VENDOR FOR INFORMATION

8. Alarm and Status Reporting

CALL VENDOR FOR INFORMATION

9. Key Management Features/Key Distribution

KEYS CAN BE ENTERED INTO THE CIPHERBIT 1027-13 EITHER MANUALLY OR VIA A KOI-18 OR A GENERAL PURPOSE TAPE READER. MANUAL ENTRY REQUIRES A PRINTED DES KEY LIST. TO ENTER A KEY VIA A KOI-18 OR A GENERAL PURPOSE TAPE READER, SPECIAL CABLES AND A DES KEY TAPE IN PUNCHED FORMAT ARE REQUIRED. CABLES CAN BE ORDERED FROM DATOTEK.

10. Key Loader

SEE ITEM 9 ABOVE

11. Equipment Physical Security Features

CALL VENDOR FOR INFORMATION

12. Cost Range

CALL VENDOR FOR INFORMATION

13. Availability

CALL VENDOR FOR INFORMATION

14. Leasing Option

CALL VENDOR FOR INFORMATION

15. Equipment Options

CALL VENDOR FOR INFORMATION

16. Misc. Descriptions

CALL VENDOR FOR INFORMATION

1. Manufacturer Name

DIGITECH TELECOMMUNICATIONS INC.

2. Manufacturer Address

342 MADISON AVENUE SUITE 2010
NEW YORK, NY 10173

3. United States Government Endorsement Identification Number (USGEID)

00000045

4. Vendor Model Number

LS-1027

5. Vendor Point of Contact

MS. SUZANNE HARPER (212) 557-7230

6. Equipment Characteristics

PORTS: 2 - EIA RS-232C

DATA RATE: TWO UNIT CONFIGURATIONS -
1. ASYNCHRONOUS - UP TO 19,200 BAUD
2. SYNCHRONOUS - UP TO 9,600 BAUD

PROTOCOLS: 1. ASYNCHRONOUS - START/STOP
2. SYNCHRONOUS - SYNC/BISYNC
SDLC
X.25/HDLC

ZEROIZE: 1. MANUAL
2. AUTOMATIC

PHYSICAL: 10.5" W, 2.75" H, 11.5" D
20 LBS

POWER: 120 VAC

7. Testing

THE FOLLOWING TESTS ARE AVAILABLE:

1. AUTOMATIC SELF-TEST ON POWER-UP
2. MANUAL TEST
3. LAMP/ALARM TEST
4. DES S-BOX TEST
5. DES CHECKWORD

6. KEY PARITY
7. BATTERY-BACKED RAM CHECKSUM

8. Alarm and Status Reporting

1. POWER ON/OFF
2. BATTERY STATUS
3. PARITY CHECK
4. COMMAND AND KEY INPUT CHECK
5. VISUAL AND AUDIBLE ERROR REPORTING
6. TEST MODE
7. INTRUSION

9. Key Management Features/Key Distribution

CALL VENDOR FOR INFORMATION

10. Key Loader

HEXADECIMAL KEY PAD

11. Equipment Physical Security Features

THREE TAMPER-RESISTANT KEY LOCKS

12. Cost Range

PRICED COMPETITIVELY

13. Availability

CALL VENDOR FOR INFORMATION

14. Leasing Option

CALL VENDOR FOR INFORMATION

15. Equipment Options

DESK-TOP UNIT, DESIGNED FOR EASE OF USE

16. Misc. Descriptions

CALL VENDOR FOR INFORMATION

1. Manufacturer Name

FAIRCHILD COMMUNICATIONS & ELECTRONICS CO.

2. Manufacturer Address

FAIRCHILD INDUSTRIES, INC.
GERMANTOWN, MARYLAND 20874-1182
(301) 428-6904

3. United States Government Endorsement Identification Number (USGEID)

00000031

4. Vendor Model Number

FAIRCHILD BURST ENCRYPTION UNIT (BEU)

5. Vendor Point of Contact

MR. DONALD MARCOPULOS (301) 428-6904

6. Equipment Characteristics

THE FAIRCHILD BURST ENCRYPTION UNIT IS DESIGNED TO OPERATE IN A TDMA SATELLITE COMMUNICATIONS SYSTEM IN CONJUNCTION WITH THE AMERICAN SATELLITE COMPANY'S INTEGRATED COMMUNICATIONS CONTROLLERS (ICC). THE BEU PROVIDES BULK ENCRYPTION, UP TO 12.2 MBPS, OF USER VOICE AND DATA CHANNELS WHICH HAVE BEEN MULTIPLIED AND FORMATTED BY THE ICC.

7. Testing

CALL VENDOR FOR INFORMATION

8. Alarm and Status Reporting

CALL VENDOR FOR INFORMATION

9. Key Management Features/Key Distribution

CALL VENDOR FOR INFORMATION

10. Key Loader

CALL VENDOR FOR INFORMATION

11. Equipment Physical Security Features

CALL VENDOR FOR INFORMATION

12. Cost Range

CALL VENDOR FOR INFORMATION

13. Availability

CALL VENDOR FOR INFORMATION

14. Leasing Option

CALL VENDOR FOR INFORMATION

15. Equipment Options

CALL VENDOR FOR INFORMATION

16. Misc. Descriptions

CALL VENDOR FOR INFORMATION

1. Manufacturer Name

HUGHES NETWORK SYSTEMS

2. Manufacturer Address

10790 ROSELLE STREET
SAN DIEGO, CALIFORNIA 92121

3. United States Government Endorsement Identification Number (USGEID)

00000018

4. Vendor Model Number

LC76CF DKD

5. Vendor Point of Contact

MR DAVE LASTRICO (619) 453-7007 EXT 4301

6. Equipment Characteristics

THE LC76CF DIRECT CIPHER KEY DISTRIBUTION (DKD) IS A FULL DUPLEX, DIGITAL ENCRYPTION/DECRYPTION UNIT THAT CAN OPERATE AT DATA RATES FROM 110 BPS TO 112.5 KBPS.
FOR GOVERNMENT APPLICATIONS, THE LC76CF DKD REQUIRES A KOI-18 KEY FILL DEVICE WITH SPECIAL CABLES TO LOAD THE DES KEY. THE DES KEY MUST BE ORDERED IN A PUNCHED PAPER TAPE FORMAT. QUESTIONS CONCERNING THE SPECIAL CABLES FOR THE KOI-18 AND THE LC76CF SHOULD BE DIRECTED TO BOB BERLIN (619) 457-2574.

MODEL	INPUT VOLTAGE	ELEC INTERFACE	SYNC FRAMING	POWER SUPPLY REDUNDANCY	DEU REDUNDANCY
LC76CF	115VAC	RS-442	GENERAL	1 POWER SUPPLY	1 CH=SINGLE CHANNEL
	230VAC	V35		2 POWER SUPPLIES	2 CH = DUAL CHANNEL
	48VDC	RS-232			RED = REDUNDANT

THE LC76CF WITH ALL POSSIBLE CONFIGURATIONS IS ENDORSED AS MEETING FS-1027.

7. Testing

   CALL VENDOR FOR INFORMATION

8. Alarm and Status Reporting

   CALL VENDOR FOR INFORMATION

9. Key Management Features/Key Distribution

   CALL VENDOR FOR INFORMATION

10. Key Loader

    SEE ITEM NUMBER 6 ABOVE.

11. Equipment Physical Security Features

    CALL VENDOR FOR INFORMATION

12. Cost Range

    COST FOR THE LC76CF DKD IS EXPECTED TO BE IN THE $6,000-$8,000 RANGE.

13. Availability

    CALL VENDOR FOR INFORMATION

14. Leasing Option

    CALL VENDOR FOR INFORMATION

15. Equipment Options

    CALL VENDOR FOR INFORMATION

16. Misc. Descriptions

    CALL VENDOR FOR INFORMATION

1. Manufacturer Name

HUGHES NETWORK SYSTEMS

2. Manufacturer Address

10790 ROSELLE STREET
SAN DIEGO, CALIFORNIA 92121

3. United States Government Endorsement Identification Number (USGEID)

00000014

4. Vendor Model Number

LC76

5. Vendor Point of Contact

MR DAVE LASTRICO (619) 453-7007 EXT 4301

6. Equipment Characteristics

THE LC76 IS A BULK ENCRYPTION DEVICE WHICH CAN OPERATE AT 1.544 MBPS OR IT CAN BE CONFIGURED TO OPERATE ON DIGITAL DATA STREAMS FROM 9600 BPS TO 6 MBPS. KEYING MATERIAL REQUIREMENTS AND SPECIAL CABLE REQUIREMENTS ARE THE SAME AS IN USGEID 00000013 (PAGE 2-32). THE LC76 CAN OPERATE AT VARIOUS INPUT VOLTAGES - 115VAC, 230VAC, 48VDC; IT CAN OPERATE WITH VARIOUS ELECTRICAL INTERFACES - RS442, V35, T1; IT CAN BE EQUIPPED WITH ONE OR TWO POWER SUPPLIES, IT CAN BE SINGLE CHANNEL, DUAL CHANNEL, OR 1:1 REDUNDANT

MODEL	INPUT VOLTAGE	ELEC INTERFACE	SYNC FRAMING	POWER SUPPLY REDUNDANCY	DEU REDUNDANCY
LC-76	115VAC	RS442	DS1	1PS	1DEU
	230VAC	V35	GEN	2PS	2DEU
	48VDC	T1 REDUNDANT			

THE LC76 WITH ALL POSSIBLE COMBINATIONS ABOVE IS ENDORSED AS MEETING FS-1027.

7. Testing

CALL VENDOR FOR INFORMATION

8. Alarm and Status Reporting

CALL VENDOR FOR INFORMATION

9. Key Management Features/Key Distribution

CALL VENDOR FOR INFORMATION

10. Key Loader

KEYING MATERIAL REQUIREMENTS AND SPECIAL CABLE REQUIREMENTS ARE THE SAME AS IN USGEID 00000013 (PAGE 2-32).

11. Equipment Physical Security Features

CALL VENDOR FOR INFORMATION

12. Cost Range

CALL VENDOR FOR INFORMATION

13. Availability

CALL VENDOR FOR INFORMATION

14. Leasing Option

CALL VENDOR FOR INFORMATION

15. Equipment Options

CALL VENDOR FOR INFORMATION

16. Misc. Descriptions

CALL VENDOR FOR INFORMATION

1. Manufacturer Name

HUGHES NETWORK SYSTEMS

2. Manufacturer Address

10790 ROSELLE STREET
SAN DIEGO, CALIFORNIA 92121

3. United States Government Endorsement Identification Number (USGEID)

00000013

4. Vendor Model Number

LC76A-DS1

THE FOLLOWING MODELS ARE ENDORSED AS MEETING FS-1027.

LC76A-48VDC-T1-DS1-1PS-1DEU
LC76A-48VDC-T1-DS1-2PS-2DEU
LC76A-48VDC-T1-DS1-2PS-REDUNDANT
LC76A-115VAC-T1-DS1-1PS-1DEU
LC76A-115VAC-T1-DS1-2PS-2DEU
LC76A-115VAC-T1-DS1-2PS-REDUNDANT
LC76A-230VAC-T1-DS1-1PS-1DEU
LC76A-230VAC-T1-DS1-2PS-2DEU
LC76A-230VAC-T1-DS1-2PS-REDUNDANT

ALL OF THE ABOVE MODELS ARE ASSIGNED USGEID 00000013.

5. Vendor Point of Contact

MR DAVE LASTRICO (619) 453-7007 EXT 4301

6. Equipment Characteristics

THE LC76A-DS1 WHICH MEETS FS-1027 IS A BULK ENCRYPTION DEVICE WITH A TWINAX CONNECTOR WHICH OPERATES AT 1.544 MBPS IN A BELL DS1 DATA FORMAT.
FOR GOVERNMENT APPLICATIONS, THE LC76A-DS1 REQUIRES A KOI-18 KEY FILL DEVICE WITH SPECIAL CABLES TO LOAD THE DES KEY. THE DES KEY MUST BE ORDERED IN A PUNCHED PAPER TAPE FORMAT.

7. Testing

CALL VENDOR FOR INFORMATION

8. Alarm and Status Reporting

CALL VENDOR FOR INFORMATION

9. Key Management Features/Key Distribution

CALL VENDOR FOR INFORMATION

10. Key Loader

SEE ITEM 6 ABOVE: QUESTIONS CONCERNING THE SPECIAL CABLES FOR THE KOI-18 SHOULD BE DIRECTED TO KEN COHEN (619) 457-2340

11. Equipment Physical Security Features

CALL VENDOR FOR INFORMATION

12. Cost Range

COST FOR THE LC76A-DS1 IS EXPECTED TO BE IN THE $9,000-$10,000 RANGE.

13. Availability

CALL VENDOR FOR INFORMATION

14. Leasing Option

CALL VENDOR FOR INFORMATION

15. Equipment Options

CALL VENDOR FOR INFORMATION

16. Misc. Descriptions

CALL VENDOR FOR INFORMATION

1. Manufacturer Name

PARADYNE CORPORATION

2. Manufacturer Address

8550 ULMERTON ROAD
LARGO, FLORIDA 34641-3893

3. United States Government Endorsement Identification Number (USGEID)

00000015

4. Vendor Model Number

INFOLOCK MODEL 2811-13

5. Vendor Point of Contact

MR. FRANK DOLAN
PARADYNE CORPORATION
1577 SPRING HILL ROAD
VIENNA, VIRGINIA 22180
(703) 448-0062

6. Equipment Characteristics

BIT RATE: SYNCHRONOUS - UP TO 64 KBPS (CFB 8)
- UP TO 9.6 KBPS (CFB 1)

ASYNCHRONOUS- 50, 75, 110, 134.5, 150, 300, 600, 1200, 2400, 3600, 4800, 7200, 9600, 19,200 BPS

SIZE: 3.5"H X 8.5"W X 17"L
WEIGHT: 21LBS
POWER: 100, 120, 220, 240 VAC; 47-62 HZ; 40 WATTS
INTERFACE: RS-232C
PROTOCOLS: ALL (OPERATION INDEPENDENT OF LINK PROTOCOL)
ZEROIZE: MANUAL FROM FRONT PANEL; AUTOMATIC IF TAMPERING DETECTED; WITH OR WITHOUT AC POWER
DIAGNOSTICS: AUTOMATIC INTERNAL CHECKS, CONTINUOUS SELF TESTS, DIAGNOSTIC TESTS, INDICATORS

7. Testing

LINK TEST, INTERNAL ALARMS TEST, UNIT FUNCTIONAL TEST, LAMP, DISPLAY AND ANNUNCIATOR TEST, LOCAL CIPHER TEXT LOOPBACK TEST, INPUT-OUTPUT COMPARATOR TEST

8. Alarm and Status Reporting

EXTERNAL ALARM OUTPUT, REMOTE ALARM REPORTING, ERROR INDICATION

9. Key Management Features/Key Distribution

KEY INDEXING, DIAL KEY MANAGEMENT

10. Key Loader

INFOLOCK LOADS KEYS EITHER MANUALLY VIA A FRONT PANEL KEYPAD (FROM A KEY LIST) OR FROM PAPER TAPE USING A KOI-18. THE KOI-18 IS CONNECTED VIA A CABLE THAT CAN BE ORDERED FROM PARADYNE.

11. Equipment Physical Security Features

INFOLOCK MEETS THE PHYSICAL SECURITY REQUIREMENTS OF FED-STD 1027. THE INFOLOCK CASE IS STEEL. ACCESS TO THE INTERNAL CHASSIS CAN ONLY BE OBTAINED BY REMOVING THE FRONT PANEL WHICH IS PROTECTED BY A STEEL DOOR. THE STEEL DOOR, AS WELL AS ACCESS TO THE KEYPAD FUNCTIONS, IS PROTECTED BY PICK RESISTANT LOCKS. THE REAR PANEL HAS AN INTEGRAL U-BOLT FOR SECURING THE ENCRYPTOR AGAINST PHYSICAL REMOVAL.

12. Cost Range

PRICE OF INFOLOCK MODEL 2811-13 IS $1400 (QTY. 1)
QUANTITY DISCOUNTS AVAILABLE

13. Availability

AVAILABLE FROM STOCK. (ORDER "INFOLOCK MODEL 2811-13")

14. Leasing Option

AVAILABLE

15. Equipment Options

NONE

16. Misc. Descriptions

PRESET CONFIGURATIONS: INSTALLATION IS GREATLY SIMPLIFIED BY PRESET CONFIGURATIONS. MOST COMMON NETWORK CONFIGURATIONS ARE INCLUDED (SYNCHRONOUS/ASYNCHRONOUS; DIAL-UP/LEASED LINE; MASTER/SLAVE; MULTIPOINT/POINT-TO-POINT, ETC.). UNIT CAN BE FULLY CONFIGURED SIMPLY BY PRESSING THE PRESET KEY FOLLOWED BY THE NUMBER OF THE DESIRED CONFIGURATION

1. Manufacturer Name

RACAL-MILGO

2. Manufacturer Address

1601 NORTH HARRISON PARKWAY
SUNRISE, FLORIDA 33323

3. United States Government Endorsement Identification Number (USGEID)

00000016

4. Vendor Model Number

DC64-1027, 10-02A00(RS232C), 10-02A01(V.35), 10-02A02(V.11).

5. Vendor Point of Contact

WAYNE E. BRAUNSTEIN, (202) 466-3940

6. Equipment Characteristics

BIT RATE	-	UP TO 19.2 KBPS ASYNCHRONOUS
	-	UP TO 64 KBPS SYNCHRONOUS
SIZE	-	2.7"H X 8.0"W X 16.2"D
WEIGHT	-	8 LBS
POWER	-	100-240 VAC, 47-65 HZ, 19 WATTS
INTERFACES	-	RS232C, V.35, V.11
PROTOCOLS	-	PROTOCOL TRANSPARENT
ZEROIZE FEATURE	-	MANUAL AND AUTOMATIC
DIAGNOSTICS	-	DES S-BOX/CHECKWORD, PARITY CHECK CIPHER TEXT INHIBIT, LOOP BACK TEST, ROM/RAM TEST, LINK/KEYS TEST, MEMORY TEST, CIPHER TEXT MONITOR, UNATTENDED REMOTE DIAGNOSTICS
PROPAGATION DELAY	-	3 BITS PER DEVICE (SYNCHRONOUS) 1.5 BITS PER DEVICE (ASYNCHRONOUS)
RTS/CTS	-	56 DATA BITS MAX (SYNCHRONOUS) 50 DATA BITS MAX (ASYNCHRONOUS)

7. Testing

AUTOMATIC SELF TESTING UPON POWER UP, MANUAL UNATTENDED REMOTE TESTING

8. Alarm and Status Reporting

LED ALARM INDICATION AND RELAY CONTACT LOCATED ON UNIT. ALARM REPORTING INCLUDES: INADVERTENT TRANSMISSION OF PLAIN TEXT, KEY PARITY ERROR, LOSS OF MEMORY DUE TO PHYSICAL TAMPERING, FAILURE OF INTERNAL ENCRYPTION/DECRYPTION, PHYSICAL FAILURE OF LOCKS, AND POWER FAILURE (ACTIVATES RELAY CONTACT ONLY). STATUS OF KEY VARIABLES, MODE OF OPERATION, ETC. REPORT STATUS AVAILABLE FROM THE CENTRAL SITE ENCRYPTOR.

9. Key Management Features/Key Distribution

A. TWO KEY SYSTEM
   DOWNLINE LOADING OF KDs FROM CENTRAL TO REMOTE AS PER ANSI X9.17 (MANUAL OR PRE-TIMED)
   KEY INDEXING OF KKs (MANUAL OR PRE-TIMED)
   KDs AND KKs STORED IN CENTRAL SITE ENCRYPTOR, KKs ONLY IN REMOTE SITE ENCRYPTORS
B. ONE KEY SYSTEM (FOR DIAL-UP APPLICATIONS)
   KEY INDEXING OF KD'S (MANUAL OR PRE-TIMED)
C. KEY ENTRY WITH KEY LOADER-1027, KOI-18, OR GENERAL PURPOSE TAPE READER (GPTR).
   KEY LOADER-1027 REQUIRES PRINTED TAPE, KOI-18 AND GPTR REQUIRES PUNCHED PAPER TAPE

10. Key Loader

THE KEY LOADER-1027 (USGEID NUMBER 00000016) IS AVAILABLE FOR KEY VARIABLE ENTRY USING PRINTED PAPER TAPE.

11. Equipment Physical Security Features

MEETS PHYSICAL SECURITY REQUIREMENTS OF FED STD 1027.
TWO PICK RESISTANT LOCKS
WRAPAROUND (PROBE-PROOF) METAL ENCLOSURE
AUTOMATIC ERASURE OF KEY VARIABLES UPON FORCED ENTRY OR MANUAL ZEROIZATION
AUDIBLE ALARM REPORTING CAPABILITY
SECURE DESK TOP MOUNTING ASSEMBLY

12. Cost Range

COMMERICAL PRICING STARTING AT $1,900.00, GSA PRICING AVAILABLE

13. Availability

1 TO 2 WEEKS AFTER RECEIPT OF ORDER

14. Leasing Option

12, 24, 36, 60 MONTH LEASES AVAILABLE

15. Equipment Options

KEY LOADER-1027, SECURE DESK-TOP MOUNT, ADAPTOR CABLE FOR KOI-18, GPTR, RACK-MOUNTING KIT

16. Misc. Descriptions

THE RACAL-MILGO DATACRYPTOR 64-1027 IS A LINK ENCRYPTION DEVICE THAT CAN OPERATE UP TO 64 KBPS SYNCHRONOUS AND UP TO 19.2 KBPS ASYNCHRONOUS IN POINT-TO-POINT AND MULTIPOINT ENVIRONMENTS. THE DC64-1027 ENCRYPTS DATA IN SINGLE-BIT CIPHER FEEDBACK MODE UP TO 64 KBPS FOR PROTOCOL TRANSPARENT OPERATION AND AUTOMATIC RESYNCHRONIZATION.

THE DC64-1027 OFFERS AN NSA APPROVED METHOD OF KEY MANAGEMENT USING A TWO KEY SYSTEM OF KEY ENCRYPTING KEYS (KKs) AND DATA ENCRYPTING KEYS (KDs). THIS METHOD USES DOWNLINE LOADING OF (KDs) TO ELECTRONICALLY SEND KDs FROM CENTRAL TO REMOTE SITE UNITS IN ACCORDANCE WITH THE PROTOCOLS SPECIFIED IN ANSI X9.17 KEY MANAGEMENT STANDARD. KEY INDEXING IS USED TO INDEX (ADVANCE) THE KKs IN THE UNIT'S KK LIST. THE CENTRAL SITE DC64-1027 CAN ACCEPT BOTH KDs AND KKs WHILE THE REMOTE UNIT ONLY REQUIRES THE KKs. KEY INDEXING AND DOWNLINE LOADING CAN BE PERFORMED MANUALLY BY THE OPERATOR OR PROGRAMMED FOR AUTOMATIC (TIMED) OPERATION.

FOR DIAL-UP APPLICATIONS, A ONE KEY SYSTEM CAN BE USED. ALL UNITS CAN BE LOADED WITH KDs AND CONFIGURED AS CENTRAL SITE UNITS. KEY INDEXING CAN BE USED TO INDEX (ADVANCE) THE KD LIST AT EACH SITE ON AN AUTOMATIC (TIMED) BASIS.

KEY VARIABLES MAY BE ENTERED INTO THE DC64-1027 VIA A KOI-18 OR GENERAL PURPOSE TAPE READER USING PUNCHED PAPER TAPE. KEY VARIABLES MAY ALSO BE ENTERED VIA HAND-HELD KEY LOADER-1027 USING PRINTED PAPER TAPE. TO ENTER KEYS VIA KOI-18 OR GENERAL PURPOSE TAPE READER REQUIRES A SPECIAL CABLE (SUPPLIED BY RACAL-MILGO) AND PUNCHED DES KEY TAPE.

COST FOR THE DC64-1027 STARTS AT $1,900.00. GSA PRICING IS AVAILABLE. THE RACAL-MILGO DATACRYPTOR II MODEL 1027 AND THE DATACRYPTOR 64-1027 ARE ASSIGNED USGEID 00000016.

1. Manufacturer Name

RACAL-MILGO

2. Manufacturer Address

1601 NORTH HARRISON PARKWAY
SUNRISE, FLORIDA 33323

3. United States Government Endorsement Identification Number (USGEID)

00000041

4. Vendor Model Number

RACAL-MILGO DATACRYPTOR 1027 KEY MANAGEMENT CENTER

10-02A30	(DC64-1027C, RS232C link encryptor)
10-02A31	(DC64-1027C, V.35 link encryptor)
10-02A32	(DC64-1027C, V.11 link encryptor)
10-02A50	(DC64-1027KC encryptor)
10-02A70	(Software Package, non X.25 version)
10-02A71	(Software Package, X.25 version)
10-02A100	(PC and related hardware, non X.25 version)
10-02A101	(PC and related hardware, X.25 version)

5. Vendor Point of Contact

WAYNE E. BRAUNSTEIN, (202) 466-3940

6. Equipment Characteristics

DC64-1027C and DC64-1027KC

Bit Rate	- Up to 19.2Kbps Asynchronous (DC64-1027C only) Up to 64Kbps Synchronous (DC64-1027C only) 9.6Kbps Async (DC64-1027KC only)
Size	- 2.7"H X 8.0"W X 16.2"D
Weight	- 8 lbs.
Power	- 100-240VAC, 47-65HZ, 19 Watts
Interfaces	- RS232C, V.35 (DC64-1027C only), V.11 (DC64-1027 only)
Protocols	- Protocol Transparent
Zeroize Feature	- Manual and Automatic
Diagnostics	- DES S-box/checkword, parity check, cipher text inhibit, loopback test, ROM/RAM test, link/keys test, memory test, cipher text monitor, and unattended remote diagnostics.
Encryption Mode	- Link Encryption, Cipher Feedback up to 64Kbps (DC64-1027C only)

Key Center PC

Centralized Network and Key Management Facility for Point to Point, Multidrop, and Dial-Up Crypto Networks.
Sophisticated Database
High Speed, 20 MHZ Performance
Multi-tasking Transaction Processing
Audit Trail
Menu-driven User Interface
2Mb Memory and 60Mb Hard Disk
Color Display Monitor
500 Watts Standby Power System
Hard Copy Event Logging, Report Generation, and
Label Printing via external printers.
X.25 Network Adapter Card (X.25 networks only)

7. Testing

The Datacryptor 1027 Key Management Center allows all testing functions to be performed from a single location. These functions include Key Verification, Operating Mode Verification, and Diagnostics Testing.

8. Alarm and Status Reporting

All cryptographic alarms, error messages, key changes, operating mode changes, diagnostics testing results, and other significant events are reported to the Datacryptor 1027 Key Management Center. These events are automatically logged into the Key Center's database and externally printed for hard copy retrieval. An optional backup Key Center can maintain a duplicate database and record all events reported from the primary Key Center for disaster recovery purposes.

9. Key Management Features/Key Distribution

The Datacryptor 1027 Key Management Center offers centralized key management/distribution for the entire crypto network. Key management includes ANSI X9.17 Key Distribution plus an extension of ANSI X9.17 referred to as Racal-Milgo Key Transfer. Key distribution techniques such as key indexing and downline loading can be initiated manually by the Key Center operator or programmed for automatic, pre-timed operation. Key verifications, key changes, key translations, and key zeroization functions can all be performed from one central location.

10. Key Loader

All keying material is supplied by NSA in paper tape and floppy disk form. Floppy disks contain encrypted Data Encrypting Keys (KDs) and "first layer" Key Encrypting Keys (KKs) which are encrypted under Facility Keys (KCs). Paper tapes contain unencrypted KKCs ("second layer" Key Encrypting Keys) and KCs. The KDs and KKs are distributed electronically from the Key Center

while KKCs are distributed manually via KOI-18, General Purpose Tape Reader, or Key Loader-1027. The KCs are loaded from paper tape into the DC64-1027KC unit which is attached to the Key Center's PC.

Contact vendor for key storage capabilities of the Key Management Center system components.

11. Equipment Physical Security Features

DC64-1027C and DC64-1027KC

Two pick resistant locks
Wraparound (probe-proof) metal enclosure
Automatic zeroization (erasure) of key variables upon forced entry and manual zeroization by the operator.
Audible alarm reporting capability
Secure desk top mounting assembly (optional)

Key Center PC

Two Level User Authorization
User Name and Password Protection
Lockout on Maximum Failed Logon Attempts (user defined)
Physical Lock Access Control
Optional Secure Mounting (Anchor Pad)

12. Cost Range

Contact Vendor

13. Availability (after receipt of equipment order)

Contact Vendor

14. Leasing Option

Contact Vendor

15. Equipment Options

Backup Key Center
40 Mb Backup Tape Drive for Key Center PC
Anchor Pad Computer Security System for Key Center PC
Desk Top Mounting Assembly for DC64-1027KC or C encryptors
Rack Mount Assembly for DC64-1027/c encryptors
Interface Cable for KOI-18 or General Purpose Tape Reader
Key Loader-1027 for external key variable entry from printed tape

16. Misc. Descriptions

The Racal-Milgo Datacryptor 1027 Key Management Center provides Network and Key Management for an entire network of Datacryptor encryption devices. Key Center hardware components consist of a customized Personal Computer, two Printers, and a Datacryptor 64-1027KC. The PC stores all information pertaining to the crypto network such as key variables, unit addresses, unit serial numbers, alarm and error messages, and other significant information. The printers provide continuous event logging, hard copy report generation, and label printing. The DC64-1027KC performs all the cryptographic functions for the Key Center and is a peripheral device to the PC.

Datacryptor 64-1027C's are used for encryption/decryption of user data on a link by link basis. A central site DC64-1027C communicates with the Key Center to perform downline loading and key indexing functions through commands from the Key Center. A typical cryptographic service message flow is Key Center to central site DC64-1027C to remote site DC64-1027C.

1. Manufacturer Name

TECHNICAL COMMUNICATIONS CORPORATION

2. Manufacturer Address

100 DOMINO DRIVE
CONCORD, MA 01742
(617) 862-6035

3. United States Government Endorsement Identification Number (USGEID)

00000027

4. Vendor Model Number

CIPHER X 5000-1027-X.25

5. Vendor Point of Contact

JOHN GILL (617) 862-6035

6. Equipment Characteristics

THE TCC CIPHER X 5000-1027 X.25 PROVIDES END-TO-END ENCRYPTION THROUGH AN X.25 PUBLIC OR PRIVATE DATA NETWORK. THE CIPHER X 5000-1027 X.25 PROVIDES SECURITY IN A NETWORK-TRANSPARENT MANNER BY ENCRYPTING ONLY THE USER DATA PORTION OF EACH PACKET AND ALLOWING THE REMAINING CONTROL FIELDS TO PASS IN THE CLEAR. THE CIPHER X 5000-1027 X.25 CAN OPERATE AT LINE SPEEDS UP TO 9600 BPS AND IS ABLE TO SUPPORT UP TO 127 SIMULTANEOUS SWITCHED VIRTUAL CIRCUITS. INDIVIDUAL CIRCUITS CAN BE ASSIGNED PLAIN OR CIPHER MODE BASED ON NETWORK ADDRESS. THE STANDARD INTERFACE IS RS-232C.

7. Testing

THE CIPHER X 5000 X.25 RUNS THE FOLLOWING TESTS AUTOMATICALLY ON POWER UP: S-BOX, CHECKWORD, KEY PARITY CHECK, CIPHER TEXT INHIBIT, CONTROL FIELD RECOGNITION, KEYFAIL, ROM/RAM, AND LAMP. EACH TEST CAN ALSO BE INITIATED MANUALLY.

8. Alarm and Status Reporting

A FAILURE ON THESE TESTS, OR A KEY MANAGEMENT OR OPERATION ERROR, WILL PRODUCE A VISIBLE ALARM INDICATION AND INHIBIT USE UNTIL THE ALARM IS CLEARED WITH A PICK RESISTANT KEYLOCK.

9. Key Management Features/Key Distribution

THE CIPHER X 5000-1027 X.25 SUPPORTS AN EXPANDED KEY DATABASE. THESE KEYS CAN BE CHANGED THROUGH THE FRONT PANEL SELECTION OF A KEY INDEX. FOR THE CIPHER X 5000-1027 X.25, NSA HAS APPROVED THE MANUAL AND AUTOMATIC KEY INDEXING METHOD WHERE THE KEY INDEX IS SENT TO THE REMOTE CIPHER X 5000 X.25 AS PART OF AN ENCRYPTION HEADER. THE HEADER IS MAC'ED PER ANSI X9.9 TO ASSURE ITS INTEGRITY. BATTERY BACKUP RETAINS KEYS WITHOUT AC POWER FOR UP TO THREE YEARS.

10. Key Loader

KEYING VARIABLES ARE LOADED VIA A KOI-18 OR OTHER APPROVED DES KEY LOADER. THE KOI-18 TO CIPHER X 5000-1027 X.25 INTERFACE CABLE MAY BE ORDERED FROM TCC.

11. Equipment Physical Security Features

THE CIPHER X 5000 X.25 FEATURES A STEEL ENCLOSURE WITH NO VENT HOLES AND DUAL PICK RESISTANT LOCKS. THE ENCLOSURE HAS A SECURE ANTI-THEFT MOUNTING. CONTACT THE VENDOR FOR FURTHER INFORMATION.

12. Cost Range

THE GSA SCHEDULE PRICE FOR THE CIPHER X 5000-1027 X.25 LINK ENCRYPTOR IS $2,995 UNDER GSA CONTRACT GS00K86AGS0508.

13. Availability

THE CIPHER X 5000 X.25 IS AVAILABLE FROM STOCK.

14. Leasing Option

ARRANGEMENTS MADE ON A CASE-BY-CASE BASIS.

15. Equipment Options

THE CIPHER X 5000 X.25 USES AN EXTERNAL POWER SUPPLY AVAILABLE AT 120 OR 240 VOLTS, 50-60 HZ. A RACK MOUNT KIT FOR A 19" RACK IS AVAILABLE AS AN OPTION.

16. Misc. Descriptions

POWER CONSUMPTION IS 15 WATTS INCLUDING THE EXTERNAL POWER SUPPLY. OPERATING TEMPERATURE RANGE IS 0 TO +50 DEGREES C.

1. Manufacturer Name

TECHNICAL COMMUNICATIONS CORPORATION

2. Manufacturer Address

100 DOMINO DRIVE
CONCORD, MA 01742
(617) 862-6035

3. United States Government Endorsement Identification Number (USGEID)

00000023

4. Vendor Model Number

CIPHER X 5000-1027

5. Vendor Point of Contact

JOHN GILL (617) 862-6035

6. Equipment Characteristics

THE TCC CIPHER X 5000-1027 IS A LINK ENCRYPTION DEVICE THAT IS PROTOCOL TRANSPARENT AND CAN OPERATE IN A POINT-TO-POINT OR MULTIPOINT ENVIRONMENT. THE CIPHER X 5000-1027 CAN OPERATE IN A SYNCHRONOUS OR ASYNCHRONOUS MODE, HALF OR FULL DUPLEX, UP TO 9600 BPS. THE STANDARD INTERFACE IS RS-232C.

7. Testing

THE CIPHER X 5000-1027 RUNS THE FOLLOWING TESTS AUTOMATICALLY ON POWERUP: S-BOX, CHECKWORD, KEY PARITY CHECK, CIPHER TEXT INHIBIT, CONTROL FIELD RECOGNITION, KEYFAIL, ROM/RAM, AND LAMP. EACH TEST CAN ALSO BE INITIATED MANUALLY.

8. Alarm and Status Reporting

A FAILURE ON THESE TEST, OR A KEY MANAGEMENT OR OPERATION ERROR, WILL PRODUCE A VISIBLE ALARM INDICATION AND INHIBIT USE OF THE EQUIPMENT UNTIL THE ALARM IS CLEARED WITH A PICK RESISTANT KEYLOCK.

9. Key Management Features/Key Distribution

THE CIPHER X 5000-1027 SUPPORTS AN EXPANDED KEY DATABASE. THESE KEYS CAN BE CHANGED THROUGH THE FRONT PANEL SELECTION OF A KEY INDEX. FOR THE CIPHER X 5000-1027, NSA HAS APPROVED THE MANUAL AND AUTOMATIC KEY INDEXING METHOD WHERE THE KEY INDEX IS SENT TO THE REMOTE CIPHER X 5000-1027 AS PART OF AN ENCRYPTION HEADER. THE HEADER IS MAC'ED PER ANSI X9.9 TO ASSURE ITS INTEGRITY. BATTERY BACKUP RETAINS KEYS WITHOUT AC POWER FOR UP TO THREE YEARS.

10. Key Loader

KEY VARIABLES ARE LOADED VIA A KOI-18 OR OTHER APPROVED DES KEY LOADER. THE KOI-18-TO-CIPHER X 5000-1027 INTERFACE CABLE MAY BE ORDERED FROM TCC.

11. Equipment Physical Security Features

THE CIPHER X 5000-1027 FEATURES A STEEL ENCLOSURE WITH NO VENT HOLES AND DUAL PICK RESISTANT LOCKS. THE ENCLOSURE HAS A SECURE ANTI-TAMPER MOUNTING. CONTACT THE VENDOR FOR FURTHER INFORMATION.

12. Cost Range

THE GSA SCHEDULE PRICE FOR THE CIPHER X 5000-1027 LINK ENCRYPTOR IS $2,195 UNDER GSA CONTRACT GS00K86AGS0508.

13. Availability

THE CIPHER X 5000-1027 IS AVAILABLE FROM STOCK.

14. Leasing Option

ARRANGEMENTS MADE ON A CASE-BY-CASE BASIS.

15. Equipment Options

THE CIPHER X 5000-1027 USES AN EXTERNAL POWER SUPPLY AVAILABLE AT 120 OR 240 VOLTS, 50-60 HZ. A RACK MOUNT KIT FOR A 19" RACK IS AVAILABLE AS AN OPTION.

16. Misc. Descriptions

POWER CONSUMPTION IS 15 WATTS INCLUDING THE EXTERNAL POWER SUPPLY. OPERATING TEMPERATURE RANGE IS 0 TO +50 DEGREES C.

1. Manufacturer Name

TECHNICAL COMMUNICATIONS CORPORATION

2. Manufacturer Address

100 DOMINO DRIVE
CONCORD, MA 01742
(617) 862-6035

3. United States Government Endorsement Identification Number (USGEID)

00000023

4. Vendor Model Number

SYNC 64 CIPHER X 5000-1027

5. Vendor Point of Contact

JOHN GILL (617) 862-6035

6. Equipment Characteristics

THE TCC SYNC 64 CIPHER X 5000-1027 IS A SYNCHRONOUS LINK ENCRYPTION DEVICE THAT IS PROTOCOL TRANSPARENT AND CAN OPERATE IN A POINT-TO-POINT OR A MULTIPOINT ENVIRONMENT, HALF OR FULL DUPLEX, AT DATA RATES UP TO 64 KBPS. THE STANDARD INTERFACE IS RS-232C. CONTACT THE MANUFACTURER FOR OTHER INTERFACE OPTIONS.

7. Testing

THE SYNC 64 CIPHER X 5000-1027 RUNS THE FOLLOWING TESTS AUTOMATICALLY ON POWER UP: S-BOX, CHECKWORD, KEY PARITY CHECK, CIPHER TEXT INHIBIT, CONTROL FIELD RECOGNITION, KEYFAIL, ROM/RAM, AND LAMP. THESE TESTS CAN ALSO BE INITIATED MANUALLY.

8. Alarm and Status Reporting

A FAILURE ON THESE TESTS, OR A KEY MANAGEMENT OR OPERATION ERROR, WILL PRODUCE A VISIBLE ALARM INDICATION AND INHIBIT EQUIPMENT USE UNTIL THE ALARM IS CLEARED WITH A PICK RESISTANT KEYLOCK.

9. Key Management Features/Key Distribution

THE SYNC 64 CIPHER X 5000-1027 SUPPORTS SEVERAL KEY MANAGEMENT OPTIONS. THE KEYS CAN BE CHANGED THROUGH THE FRONT PANEL SELECTION OF A KEY INDEX. DOWNLINE KEY INDEXING OR DOWNLINE KEY LOADING IS ALSO AVAILABLE FOR THIS OPERATION. A KEY INDEX OR AN ENCRYPTED DATA KEY IS SENT VIA THE NETWORK TO THE REMOTE SYNC 64 CIPHER X 5000-1027 AS PART OF A CRYPTOGRAPHIC SERVICE MESSAGE. THE MESSAGE IS MAC'ED PER ANSI X9.9 TO ASSURE ITS INTEGRITY. BATTERY BACKUP RETAINS KEYS WITHOUT AC POWER FOR UP TO THREE YEARS.

10. Key Loader

KEY VARIABLES ARE LOADED VIA KOI-18 OR OTHER APPROVED DES KEY LOADER. THE KOI-18-TO-SYNC 64 CIPHER X 5000-1027 INTERFACE CABLE MAY BE ORDERED FROM TCC.

11. Equipment Physical Security Features

THE SYNC 64 CIPHER X 5000-1027 FEATURES A STEEL ENCLOSURE WITH NO VENT HOLES AND DUAL PICK RESISTANT LOCKS. THE ENCLOSURE HAS A SECURE ANTI-THEFT MOUNTING. CONTACT THE VENDOR FOR FURTHER INFORMATION.

12. Cost Range

CONTACT MANUFACTURER FOR INFORMATION

13. Availability

CONTACT MANUFACTURER FOR INFORMATION

14. Leasing Option

ARRANGEMENTS MADE ON A CASE-BY-CASE BASIS.

15. Equipment Options

THE SYNC 64 CIPHER X 5000-1027 USES AN EXTERNAL POWER SUPPLY AVAILABLE AT 120 OR 240 VOLTS, 50-60 HZ. A RACK MOUNT KIT FOR A 19" RACK IS AVAILABLE AS AN OPTION.

16. Misc. Descriptions

POWER CONSUMPTION IS 15 WATTS INCLUDING THE EXTERNAL POWER SUPPLY. OPERATING TEMPERATURE RANGE IS 0 TO +50 DEGREES C.

1. Manufacturer Name

TECHNICAL COMMUNICATION CORPORATION

2. Manufacturer Address

100 DOMINO DRIVE
CONCORD, MA 01742
(617) 862-6035

3. United States Government Endorsement Identification Number (USGEID)

00000040

4. Vendor Model Number

CSD 3324A-1027

5. Vendor Point of Contact

JOHN GILL (617) 862-6035

6. Equipment Characteristics

THE TCC CSD 3324A-1027 IS A DIGITAL VOICE AND DATA ENCRYPTION DEVICE WHICH ENSURES THE PRIVACY OF INFORMATION TRANSMITTED OVER A STANDARD FULL-DUPLEX VOICE-GRADE COMMUNICATIONS CHANNEL. THE UNIT IS A COMPLETE SYSTEM COMBINING A FULL-DUPLEX LPC VOICE DIGITIZER, CIPHER UNIT, CONTROL CIRCUITS AND MODEM IN A SINGLE COMPLETE PACKAGE. THE STANDARD CONFIGURATION FOR TELEPHONE USE INCLUDES THE TCC SECURE PHONE FOR DIRECT CONNECTION TO THE PSTN. THE CSD 3324A MAY ALSO BE INTERFACED TO SATELLITE CHANNELS OR MOBILE TELEPHONE. THE STANDARD DATA INTERFACE SUPPORTS RS-232C FOR TERMINAL, FAX, OR TELETYPEWRITER COMMUNICATIONS.

7. Testing

THE TCC CSD 3324A RUNS THE FOLLOWING TESTS AUTOMATICALLY ON POWER UP: S-BOX, CHECKWORD, KEY PARITY CHECK, CIPHER TEXT INHIBIT, CONTROL FIELD RECOGNITION, KEYFAIL, ROM/RAM, AND LAMP. THESE TESTS CAN ALSO BE INITIATED MANUALLY. IN ADDITION, A SELF-LOOPBACK TEST MAY BE MANUALLY INITIATED.

8. Alarm and Status Reporting

A FAILURE ON THESE TESTS, OR A KEY MANAGEMENT OR OPERATION ERROR, WILL PRODUCE A VISABLE ALARM INDICATION AND INHIBIT USE OF THE EQUIPMENT UNTIL THE ALARM IS CLEARED.

9. Key Management Features/Key Distribution

THE CSD 3324A UTILIZES A KEY DATABASE. THESE KEYS CAN BE CHANGED THROUGH THE FRONT PANEL SELECTION OF A KEY INDEX. DURING THE "GO SECURE" HANDSHAKE PROCEDURE, THE KEY INDEX IS SENT TO THE REMOTE CSD 3324A AS PART OF AN ENCRYPTION HEADER. THE HEADER IS MAC'ED PER ANSI X9.9 TO ASSURE ITS INTEGRITY. BATTERY BACKUP RETAINS KEYS WITHOUT AC POWER FOR UP TO THREE YEARS.

10. Key Loader

KEY VARIABLES FOR THE FS-1027 VERSION ARE LOADED VIA A KOI-18 OR OTHER APPROVED DES KEY LOADER. THE KOI-18-TO-CSD 3324A INTERFACE CABLE MAY BE ORDERED FROM TCC.

11. Equipment Physical Security Features

THE CSD 3324A MEETS FED STD 1027 PHYSICAL SECURITY REQUIREMENTS. IT FEATURES A STEEL ENCLOSURE WITH NO VENT HOLES AND DUAL PICK RESISTANT LOCKS. THE ENCLOSURE HAS A SECURE ANTI-THEFT MOUNTING. CONTACT THE VENDOR FOR FURTHER INFORMATION.

12. Cost Range

THE GSA SCHEDULE FOR THE CSD 3324A-1027 NARROWBAND DIGITAL VOICE OR DATA ENCRYPTOR IS $11,930 UNDER GSA CONTRACT GS00K86AGS0508.

13. Availability

THE CSD 3324A IS AVAILABLE FROM STOCK.

14. Leasing Option

ARRANGEMENTS MADE ON A CASE-BY-CASE BASIS.

15. Equipment Options

THE CSD 3324A USES AN EXTERNAL POWER SUPPLY WHICH OPERATES FROM 90-260 VAC, 50-60 HZ. OPTIONALLY, A DC POWER SUPPLY MAY BE ORDERED AT 12, 24, OR 48 VDC. A RACK MOUNT KIT FOR A 19" RACK IS ALSO AVAILABLE AS AN OPTION.

16. Misc. Descriptions

POWER CONSUMPTION IS LESS THAN 20 WATTS INCLUDING THE EXTERNAL POWER SUPPLY. OPERATING TEMPERATURE RANGE IS 0 TO +50 DEGREES C.

DES Voice Equipment
Endorsed by the NSA as Meeting Federal Standard 1027

1. The Motorola DES Key Variable Loader (KVL), T3020-X, does not support the new Motorola DES-XL Module and is no longer in production. The new replacement DES KVL, T3011, will support both the old DES Modules and DES-XL Modules. Contact Motorola for pricing information on the new DES-XL KVL Model T3011.

The new Motorola DES-XL KVL, T3011, and the old Motorola DES Key Loader, T3020-X are identified as United States Government Endorsement Identification Number (USGEID) 00000001*.

2. Motorola DES Handheld Radios (MX-300 series with individual channel elements).

H23AXU1120_N	H33AXU1120_N	H43AXU1120_N	This item has has been discontinued by Motorola effective 1 January 1984.
H23AXU1160_N	H33AXU1160_N		
H23AXU3120_N	H33AXU3120_N	H43AXU3120_N	
H23AXU3140_N	H33AXU3140_N	H43AXU3140_N	
H23AXU3160_N	H33AXU3160_N		

H24AXU1120-N	H34AXU1120_N	H44AXU1120_N
H24AXU1140_N	H34AXU1140_N	H44AXU1140_N
H24AXU1160_N	H34AXU1160_N	H44AXU1160_N
H24AXU1180_N	H34AXU1190_N	H44AXU1180_N
H24AXU3120_N	H34AXU3120_N	H44AXU3120_N
H24AXU3140_N	H34AXU3140_N	H44AXU3140_N
H24AXU3160_N	H34AXU3160_N	H44AXU3160_N
H24AXU3180_N	H34AXU3180_N	H44AXU3180_N

The handheld radios must have been purchased with the H388 Option. The DES Module, ordered under the H388 Option, replaces the Motorola proprietary DVP Module. This product will not support the new Motorola DES-XL Module.

The Motorola MX-300 DES Handheld Radios are Identified as USGEID 00000002.

*** Every DES equipment that NSA endorses is identified by the term "USGEID" and an eight digit code. This equipment designator shall be permanently affixed to the equipment by the manufacturer and be readily visible to the purchaser at the time of purchase.**

3. Motorola DES Mobile Radios

T43TXA1200_K	T83TXA1200_K		This item has been discontin - ued by Motorola effective 31 March 1986.
T43TXA1D00_K	T83TXA1D00_K		
T43TXA1J00_K	T83TXA1J00_K		
T43TXA3200_K	T83TXA3200_K		
T43TXA3D00_K	T83TXA3D00_K		
T43TXA3J00_K	T83TXA3J00_K		
T34TXA1200_K	T44TXA1200_K	T74TXA1200_K	
T34TXA1D00_K	T44TXA1D00_K	T74TXA1D00_K	
T34TXA1J00_K	T44TXA1J00_K	T74TXA1J00_K	
T34TXA3200_K	T44TXA3200_K	T74TXA3200_K	
T34TXA3D00_K	T44TXA3D00_K	T74TXA3D00_K	
T34TXA3J00_K	T44TXA3J00_K	T74TXA3J00_K	

Motorola DES Mobile Radios must have been purchased with the W388 Option and the W391 Security Option. This product will not support the new Motorola DES-XL Module.

The Motorola DES Mobile Radios are identified as USGEID 00000003.

4. Motorola DES Base Stations/Fixed Repeaters

C53RXB1106_T	C73RXB1106_T	C53RXB3106_T	C73RXB3106_T
C53RXB1126	C73RXB1126	C53RXB3126	C73RXB3126
C53RXB1196	C73RXB1196	C53RXB3196	C73RXB3196
C34RXB1106_T	C64RXB1106_T	C34RXB3106_T	C64RXB3106_T
C34RXB1126	C64RXB1126	C34RXB3126	C64RXB3126
C34RXB1196	C64RXB1196	C34RXB3196	C64RXB3196
B84RXB1106_SP			
B84RXB1106_TSP			
B84RXB3106_SP			
B84RXB3106_TSP			
B93RXB1106_TSP	B93RXB3106_TSP		
B93RXB1126SP	B93RXB3126SP		
B93RXB1196SP	B93RXB3196SP		

The Motorola DES Base Stations must be purchased with the Option C388 (old DES Module), or Option C795 (DES-XL Module), C557 Security Option, and the TLN2477 Cabinet Security Kit, the TLN2478 Cabinet Security Kit or the TRN5669 Cabinet Security Kit.

The DES Module, ordered under the C388 Option is provided at no extra charge, contact Motorola for pricing information on the DES-XL Option C795. The C557 Security Option costs $9.42. The TLN2477 Cabinet Security Kit costs $216.75. The TLN2478 Cabinet Security Kit costs $216.75. The TRN5669 Cabinet Security Kit costs $59.50.

The Motorola DES Base Stations/Fixed Repeaters range in cost from $7,000.00 for the C53RXB1106_T to $8,500.00 for the C64RXB3196_T.

Motorola has modified versions of standard 100 watt DES MICOR Base and repeater stations, which provide for the Interconnection of base stations or repeaters to the Telephone Network using the Microprocessor Radio-Telephone Interface (MRTI) Telephone Patch. The SP75, SP76, and SP77 Stations are Encode/Decode type containing all the standard control functions plus the MRTI.

The stations types are as follows:

- SP75 Encode/Decode Repeater with Wireline Control
- SP76 Encode/Decode Repeater with Monitor Receiver
- SP77 Encode/Decode Base Station

The Motorola DES Base Station/Fixed Repeater is identified as USGEID 00000004.

5. Motorola Synthesized DES Handheld Radios (MX-300-S, PX-300-S)

MX-300-S

H23SXU1140_N/H99SX + 001H	H24SXU1140_N/H99SX + 010H
H23SXU3140_N/H99SX + 002H	H24SXU3140_N/H99SX + 011H
H33SXU1140_N/H99SX + 004H	H34SXU1140_N/H99SX + 013H
H33SXU3140_N/H99SX + 005H	H34SXU3140_N/H99SX + 014H
H43SXU1140_N/H99SX + 007H	H44SXU1140_N/H99SX + 016H
H43SXU3140_N/H99SX + 008H	H44SXU3140_N/H99SX + 017H

PX-300-S

P1334_X	P1336_X	P1599
P1335_X	P1337_X	
P1338_X	P1340_X	
P1339_X	P1341_X	
P1346_X	P1348_X	
P1347_X	P1349_X	
P1351_X	P1353_X	
P1352_X	P1354_X	
P1560AX	P1350AX	

The Motorola Synthesized DES Handheld radios must be purchased with Option H388 (old DES Module) or with Option H795 (DES-XL Module). The DES Module, ordered under the H388 Option costs $425.00 (UHF and VHF) at time of ordering the radio. For pricing information on Option H795, DES-XL, contact Motorola.

The Motorola Synthesized DES Handheld radios range in cost from $2,750.00 for the H23SXU1140_N/H99SX + 001H to $3,250.00 for the H44SXU3140_N/H99SX + 017H.

The MX-300-R is the exact same radio as the MX-300-S except that it has a housing that meets Mil-Spec-810C. The cost of this Mil-Spec-810C housing is $206.00. Request Option "H499" if the ruggedized housing is desired.

The Motorola Portable DES Base Station, P1350AX is a two-way FM radio that incorporates the radio chassis components of two MX- 300-S portable radios (one for transmit, the other for receive) interfaced to a control panel in a self-contained unit housed in an aluminum suitcase. The station utilizes a power amplifier that is capable of providing up to 30 watts of power for long range communications, or can draw as low as one watt to conserve power and transmit over shorter distances.

The Motorola Portable DES Receiver Station, P1599, is similar to the Motorola Portable DES Base Station except that there is no transmit capability, only receive.

For pricing information on the Motorola Portable DES Receiver Station and Portable DES Base Station, contact Motorola.

The PX-300-S ranges in cost from $3,212.00 for the P1334_X to $3,749.00 for the P1354_X. There is no additional charge for DES.

The Motorola DES MX-300-S, MX-300-R, PX-300-S, P1350AX, and P1599 are identified as USGEID 00000005.

6. Motorola DES SYNTOR-X Mobile Radio

VHF DES SYNTOR-X Radio

T43VXJ7204_K/T99VX + 004W
T43VXJ7DO4_K/T99VX + 005W
T43VXJ7J04_K/T99VX + 006W
T73VXJ7204_K/T99VX + 007W
T73VXJ7DO4_K/T99VX + 008W
T73VXJ7JO4_K/T99VX + 009W

UHF DES SYNTOR-X Radio

T74VXJ7204_K/T99VX + 016W
T74VXJ7D04_K/T99VX + 017W
T74VXJ7J04_K/T99VX + 018W

T64VXJ7204_K/T99VX + 013W
T64VXJ7D04_K/T99VX + 014W
T64VXJ7J04_K/T99VX + 015W

T34VXJ7204_K/T99VX + 010W
T34VXJ7D04_K/T99VX + 011W
T34VXJ7J04_K/T99VX + 012W

Low Band DES SYNTOR-X

T71VXJ7204_K/T99VX + 001W
T71VXJ7D04_K/T99VX + 002W
T71VXJ7J04_K/T99VX + 003W

DES SYNTOR-X 9000

Low Band

T71KXJ704AK/T99KX + 035W

VHF

T43KXJ7J04AK/T99KX + 036W
T73KXJ7J04AK/T99KX + 037W

UHF

T34KXJ7J04AK/T99KX + 038W
T64KXJ7J04AK/T99KX + 039W
T74KXJ7J04AK/T99KX + 040W

DES SYNTOR-X 9000E Trunked

T45FXJ7J04AK/T99FX + 051W 800 MHz Trunked high power
T35FXJ7J04AK/T99FX + 052W 800 MHz Trunked low power

DES SYNTOR-X 9000E UHF

T74FXJ7J04BK/T99FX + 050W

The Motorola Low Band DES SYNTOR-X Mobile Radio operates in the 33-50 Mhz low band range. Prices range from $2,840.00 for the T71VXJ7204_K/T99VX + 001W to $2,951.00 for the T71VXJ7J04_K/T99VX + 003W.

Motorola DES SYNTOR-X Mobile Radios must be purchased with Option W388 (old DES Module) or Option W795 (DES-XL), and the W391 Security Option. The DES Module, ordered under the W388 Option, costs $425.00, at time of ordering the radio. Contact Motorola for pricing information on Option W795 DES-XL. The W391 Security Option, which protects the DES and related electronics in a lockable security enclosure, costs $153.35. Option W303AFSP is a dual code DES equipped SYNTOR X. For pricing information on this option contact Motorola.

The Motorola VHF DES SYNTOR-X Mobile Radios range in cost from $2,380.00 for the T43VXJ7204_K/T99VX + 004W to $2,951.00 for the T73VXJ7J04_K/T99VX + 009W.

The Motorola UHF DES SYNTOR-X Mobile Radio range in cost from $2,480.00 for the T34VXJ7204_K/T99VX + 010W to $3,171.00 for the T74VXJ7J04_K/T99VX + 018W.

The Motorola DES SYNTOR-X 9000E, UHF version encompasses the UHF range (406-420 MHZ).

For pricing information on the Motorola DES SYNTOR-X 9000, 9000E and 9000E (UHF) version, contact your Motorola representative.

The Motorola DES SYNTOR-X, SYNTOR-X 9000 and SYNTOR-X 9000E and 9000E (UHF) version Mobile Radios are assigned USGEID 00000006.

Motorola DES 9000 Consolette Base Station Radio Package.

L35FXB5174AMSP09/L99KX + 155L
L35KXB7174AMSP09/L99KX + 156L
L64FXB5170AMSP09/L99KX + 445L
L64KXB7170AMSP09/L99KX + 446L
L64FXB5174AMSP09/L99KX + 445L
L64KXB7174AMSP09/L99KX + 446L
L44FXB5174AMSP09/L99KX + 345L
L44KXB7174AMSP09/L99KX + 346L
L63KXB7174AMSP09/L99KX + 436L

The Motorola DES 9000 Consolette Station Radio Package is a SYNTOR-X 9000/9000E Mobile Radio mounted intact within a desktop style cabinet and mated to an appropriately sized AC to DC power supply also mounted in the cabinet.

For pricing information on the Consolette Base Station Radio Package, contact Motorola.

The Motorola DES 9000 Consolette Base Station Radio Package is identified as USGEID 00000006.

7. Motorola MX-300 DES "Midband" Handheld Radio

H32AXU1120_NSP
H32AXU1140_NSP
H32AXU3120_NSP
H32AXU3140_NSP
H42AXU1120_NSP
H42AXU3120_NSP

The Motorola MX-300 DES "Midband" Handheld Radio must be purchased with Option H388 (old DES Module) or Option H795, (DES-XL). The H388 DES Module, which replaces the Motorola proprietary DVP algorithm, costs $500.00. Contact Motorola for pricing information on Option H795 DES-XL.

The Motorola MX-300 DES "Midband" Handheld radios are identifiedas USGEID Number 00000007.

8. Motorola DES Coded/Clear Portable Repeater

P43SXS1180_T
P43SXS3180_T
P44SXS1180_T
P44SXS3180_T
P42SXS1180_TSP
P42SXS3180_TSP

The Motorola DES Coded/Clear Portable Repeater must be purchased with Option H388 (old DES Module) which is provided at no extra cost, or Option H795 (DES-XL) and the PLN-6809A Security Option which costs $265.00. Contact Motorola for pricing information on Option H795, DES-XL.

The Portable Repeater ranges in cost from $8,000.00 to $11,000.00.

Motorola also builds a "clear/transparent" portable repeater which cannot be modified for DES operation. These equipments are identified as P43SYS1180_T, P43SYS3180_T, P44SYS1180_T and the P44SYS3180_T. These "clear/transparent" Portable Repeaters do not require FS-1027, NSA Endorsement.

The Motorola DES Coded/Clear Portable Repeater is Identified as USGEID 00000008.

9. Motorola DES Console Interface Unit (CIU)

Q2209CA	Q2209CE	Q2209CJ	The DES CIU has been replaced
Q2209CB	Q2209CF	Q2209CK	by Motorola with the DES
Q2209CC	Q2209CG	Q2209CL	Series II CIU listed below.
Q2209CD	Q2209CH	Q2209CM	

Motorola DES Series II CIU

T5007AX

The Motorola DES CIUs must be purchased with the C388AA Option, the C557AA or the C557AB Security Anti-Tamper Option,and either the TLN2477A, the TLN2478A, the TRN5669A, or the TRN5670A Cabinet Security Kit Option depending upon the cabinet size or configuration. Only the Series II CIU is capable of supporting the new DES-XL Module, which is Option C795. Option SP701 is the Trunking feature to the Series II CIU that has been endorsed. Option C103ABSP, is the translator, conventional-to-trunked feature that has also been endorsed. For pricing information on both options, contact Motorola. Also contact Motorola for pricing information on Option C795.

The DES Module, ordered under Option C388AA (old DES Module), is provided at no additional cost. The Security-Anti Tamper Option costs $77.25. The TLN2477A Cabinet Security Kit costs $216.75 each, the TLN2478A Cabinet Security Kit costs $216.75 the TRN5669A Cabinet Security Kit costs $59.50. The Motorola DES Series II CIU costs $3,451.00.

The Motorola DES Console Interface Unit plus the options mentioned above, are identified as USGEID 00000009.

10. Motorola DES Spectra-TAC Comparator

Q2208C

Motorola DES Comparator

Q2605

The Motorola DES Spectra-TAC Comparator and Q2605 DES Comparator must be purchased with the C388ABSP Option, the C557ACSP Security Anti-Tamper Option and either TLN2477A, the TLN2478A, the TRN5669A or the TRN5670A Cabinet Security Kit Option depending upon the cabinet size or configuration.

The Motorola Q2605 DES Comparator has a hardware kit added for remote connections to a phone patch device for signalling purposes.

The DES Module, ordered under the C388ABSP Option, is provided at no extra charge at time of ordering the CIU. The C557ACSP Security Anti-Tamper Option costs $9.42. The TLN2477A Cabinet Security Kit costs $216.75 the TLN2478A Cabinet Security Kit costs $216.75, the TRN5669A costs $59.50 and the TRN5670A costs $59.50. This product will not support the new Motorola DES-XL Module.

The Motorola DES Spectra-TAC Comparator and DES Q2605 Comparator are identified as USGEID 00000010.

11. Motorola DES MCX-100 Mobile Radio

MCX-100 VHF DES Radio

Dash Mounted Models

MBD23EXA1J00K_
MBD23EXA7J00K_

MBD43EXA1J00K_
MBD43EXA7J00K_

Trunk Mounted Models

MBT23EXA1J00K_
MBT23EXA7J00K_

MBT43EXA1J00K_
MBT43EXA7J00K_

MCX-100 UHF DES Radio

Dash Mounted Models

MBD24EXA1J00K_
MBD24EXA7J00K_

MBD44EXA1J00K_
MBD44EXA7J00K_

Trunk Mounted Models

MBT24EXA1J00K_
MBT24EXA7J00K_

MBD44EXA1J00K_
MBT44EXA7J00K_

Motorola DES MCX-1000 Mobile Radio

VHF Dash Mounted Model

MBD43UXA7H00_K/M99UX + 054W

VHF Trunk Mounted Model

MBT43UXA7H00_K/M99UX + 056W

UHF Dash Mounted Model

MBD44UXA7H00_K/M99UX + 058W

UHF Trunk Mounted Model

MBT44UXA7H00_K/M99UX + 060W

The Motorola DES MCX-100/1000 Mobile radios must be purchased with the Option MBB388 (old DES Module) and the MBB391 Security Option. The DES Module, ordered under the Option MBB388, is provided at no extra cost at time of ordering the radio. The DES-XL Module will be field added only for the MCX-100 products; the customer should contact their Motorola representative in such instances. In addition, the customer should contact Motorola for pricing information on the DES-XL Option. The MBB391 Security Option, the MBB391AA for the dash mount model and the MBB391AB for the trunk mount model, protects the DES and related electronics in a lockable security enclosure and it costs $240.55. Another option endorsed for the MCX-100/1000 is the VLN1156A, base tray. Contact Motorola for pricing information on this feature

The DES MCX-100 dash mounted mobile radios range in cost from $2,615.00 to $2,895.00. The DES MCX-100 trunk mounted mobile radios range in cost from $2,810.00 to $3,090.00.

For pricing information on the Motorola DES MCX-1000 Mobile Radio, contact your Motorola representative.

The Motorola MCX-100 and MCX-1000 DES Mobile Radios are identified as USGEID 00000012.

12. Motorola DES Handheld Radios (SECURENET-EXPO with individual channel elements.)

VHF
Standard Models

Z33BXU1110_N
H33BXU1110_N
Z33BXU1120_N
H33BXU1120_N

VHF Private Line (PL) Models

SECURENET-EXPO with PL function

H33BXU3120_N/H99BX + 019H (2 frequency)
H33BXU3110_N (1 frequency)

The Motorola SECURENET-EXPO DES Handheld Radios must be purchased with Option H388 (old DES Module) or with Option H795 (DES-XL).

The H388 DES coding algorithm Module, which replaces the Motorola Proprietary DVP algorithm, ranges from $50.00 - $100.00. Contact Motorola for pricing information on Option H795 DES-XL.

Two Options which will be offered but are not specifically listed on the EXPO price pages are:

Option H934 - change the 2 watt RF amplifier to a 1 watt amplifier.

Option H700 - allows the audio level on the radio to be turned all the way off. Without this Option, when the volume switch is at its lowest setting, some audio can still be heard from the speaker.

UHF Standard Model 2 Frequency with PL

H24BXU3120_N/H99BX + 020H

Option H801 - Omits PL

Option H501 - Omits one transmit frequency

Option H521 - Omits one receive frequency

The Motorola UHF SECURENET EXPO DES Handheld Radio H24BXU3120_N/H99BX + 020H costs $2,300.00.

The Motorola VHF SECURENET EXPO DES Handheld Radios range in cost from $1,900.00 for the Z33BXU1110_N and H33BXU1110_N to $2,300.00 for the Z33BXU1120_N and H33BXU1120_N.

The Motorola VHF & UHF SECURENET-EXPO DES Handheld Radios are identified as USGEID 00000020.

13. GE DES Mobile Radios:

DELTA SX MOBILES

N3A113	N3A135	N3B134
N3B113	N3B135	N3A136
N3A115	N3A114	N3B136
N3B115	N3B114	N3A137
N3A117	N3A116	N3A138
N3A118	N3B116	N3B137
N3A133	N3B117	N3B138
N3B133	N3B118	N3A134

RANGR MOBILES

N9G11	N9P12	N9R11
N9H11	N9S12	N9T11
N9H02	N9U12	N9V11
N9U01	N9W12	N9X11
N9P11	N9H01	N9R12
N9S11	N9G12	N9T12
N9U11	N9H12	N9V12
N9W11	N9U02	N9X12

DELTA S MOBILES

N3A107	N3A108	N3A123	N3A129
N3B107	N3B108	N3A124	N3B127
N3A109	N3A110	N3A125	N3B128
N3B109	N3B110	N3A126	N3B129
N3A111	N3B111	N3B123	N3A130
N3A112	N3B112	N3B124	N3A131
N3A119	N3A120	N3B125	N3A132
N3A121	N3A122	N3B126	N3B130
N3B119	N3B120	N3A127	N3B131
N3B121	N3B122	N3A128	N3B132

MVS MOBILES

NPH10VG1027-SP NPU10VG1027-SPNPU30VG1027-SP
NPH20VG1027-SP NPU20VG1027-SP

S-990 Mobile Radio Control Unit used with the VG9600S Voice Guard Module:
S9G990

S-550 Mobile Radio Control Unit used with the VG9600S Voice Guard Module:

S6AG10 S6AG11 S6BG10 S6BG11 S6BG12

The DELTA SX radio ranges in price from $1,730.00 to $2,555.00.

The RANGR radio ranges in price from $1,250.00 to $1,740.00.

The DELTA S radio ranges in price from $1,500.00 to $2,375.00.

For pricing information on the MVS, Contact GE.

The S-990 control unit with the VG9600S Module is priced at $2,235.00. The five models of the S-550 control unit with the VG9600S Module are priced from $1,675.00 to $1,895.00. The above mentioned control units with the VG9600S Modules are interchangeable with either the RANGR, DELTA or MVS mobile radios.

The mobile radio, control unit and VG9600S Module are normally ordered together for DES applications. However, the control units (S-550/S990) with the Voice Guard Module can be purchased separately to upgrade existing clear voice RANGR, DELTA and MVS Mobiles. The model number is S6VG01 and the price is $1,370.00. The VG9600 is identified as USGEID 00000021.

13a. GE DES End-To-End MASTR Controller:

64G32
64G33

The GE DES End-To-End MASTR Controller includes the VG9600C Voice Guard Module, modem, and interface assembly. Prices range from $9,350.00 to $9,465.00. The VG9600C is identified as USGEID 00000021.

14. GE DES Key Variable Loader V4025:

The DES Key Variable Loader costs $1,875.00. The key variable loader is identified as USGEID 00000022.

The GE DES Key Loader requires a printed DES Key List.

15. GE DES Voice Guard equipped MPS Personal Radio

MPS Series VHF

P9HMAG	P9JMAG	P9KMAG
P9HMBG	P9JMBG	P9KMBG
P9HMCG	P9JMCG	P9KMCG
P9HMDG	P9JMDG	P9KMDG
P9HMEG	P9JMEG	P9KMEG
P9HMFG	P9JMFG	P9KMFG
P9HMTG	P9JMTG	P9KMTG

MPS Series UHF

P9MMAG	P9RMAG	P9SMAG	P9TMAG
P9MMBG	P9RMBG	P9SMBG	P9TMBG
P9MMCG	P9RMCG	P9SMCG	P9TMCG
P9MMDG	P9RMDG	P9SMDG	P9TMDG
P9MMEG	P9RMEG	P9SMEG	P9TMEG
P9MMFG	P9RMFG	P9SMFG	P9TMFG
P9MMTG	P9RMTG	P9SMTG	P9TMTG

The GE DES Voice Guard equipped MPS Personal Radio is a modularized, frequency synthesized, two-way FM communications system.

The prices of the GE DES Voice Guard equipped MPS Personal Radios range from $3,260.00 to $3,540.00 depending on model number.

The GE Voice Guard equipped MPS Personal Radio is identified as USGEID 00000026.

16. GE DES Voice Guard MASTR II Encrypt/Decrypt Station, VG9600SR including options as follows:

    9785 - Remote only 1 frequency
    9788 - Remote/Repeat 1 frequency
    9797 - Remote 2 frequencies

The GE DES Voice Guard equipped MASTR II encode/decode station utilizes the VG9600SR DES Module mounted to a steel shelf located in a protective cabinet, whose front and rear panels are secured by MEDECO anti-tamper locks. The unencrypted information is transferred between the remote controller and the station, the information is then encrypted at the station prior to transmission. The GE DES Voice Guard MASTR II encrypt/decrypt station, VG9600SR is identified as USGEID 00000030.

The price of the DES option ranges from $1,745.00 to $3,365.00, depending on model type ordered.

17. Motorola DES SVX-1000* Telephone Voice Security Terminal, T5125_X

The Motorola SVX-1000 Terminal incorporates the DES algorithm into a desktop terminal that can be used with an ordinary telephone to provide voice encryption/decryption for calls that originate or are answered at that phone. The SVX-1000 is intended for the protection of unclassified voice messages over public telephone networks. The SVX-1000 incorporating DES must be purchased with Option C388 (old DES Module) or with Option C795 (DES-XL). The Motorola DES SVX-1000 Telephone Voice Security Terminal is identified as USGEID 00000032.

For pricing information on the SVX-1000, and the Option C795 DES-XL, please contact Motorola.

18. GE DES DELTA/RANGR Desktop Station with VG9600S model numbers N8G201 and N8G202

The GE DES DELTA Desktop Station utilizes GE's previously NSA DES Endorsed DELTA Mobile Radio inside a stylized control panel box along with the previously endorsed GE VG9600S DES Module, in a fixed configuration. This product provides encrypted/decrypted two-way radio communications at the operator's location for unclassified voice traffic. The price for the model N8G201 is $2,345.00 and the price for the model N8G202 is $3,140.00. The GE DES DELTA Desktop Station with VG9600S is identified as USGEID 00000033.

19. GE DES Seven Key Voice Guard VG9600S/C Module*

The GE seven key version Voice Guard VG9600S/C DES Module is capable of supporting up to seven cryptographic keys. This multiple-key product utilizes the previously NSA DES Endorsed GE VG9600 DES single key Module, the only hardware difference being the addition of a multiple key

selection switch. The GE DES Voice Guard VG9600S/C seven key version is identified as USGEID 00000034.

Contact General Electric for pricing information.

20. GE DES CIU Equipped with VG9600R models CCDG1, CCDG2, CCDG3 and CCDG4

The GE DES CIU must be purchased with the DES Voice Guard VG9600SR Module. The GE DES CIU provides for encryption/decryption of unclassified voice communications. The CIU is intended to be located in a central dispatching point and interconnect with one or more dispatching consoles. The DES VG9600SR Module is mounted in a 30-in. station cabinet that is secured by MEDECO anti-tamper locks. There is a trunking version of this item that is also endorsed. This option encompasses a modification to the software in the previously endorsed VG9600 Module which permits compatability with the GE 16 Plus trunking products. The GE DES CIU equipped with the VG9600SR Module and the modified GE DES CIU that is compatabile with the 16 Plus trunked products are identified as USGEID 00000036. Prices for the CIU range from $9,115.00 to $32,825.00. For option numbers and pricing information on the trunking feature, contact GE.

21. GE DES M-PD Voice Guard Personal Radios

M-PD Series VHF

PVGE5G	PVGF5G
PVHE5G	PVHF5G
PVJE5G	PVJF5G

M-PD Series UHF

PVPE5G	PVPF5G
PVRE5G	PVRF5G
PVSE5G	PVSF5G
PVTE5G	PVTF5G
PVUE5G	PVUF5G
PVVE5G	PVVF5G
PVWE5G	PVWF5G
PVXE5G	PVXF5G

M-PD/PST/VG

400 MHz

PVPJ5G PVPK5G

M-PD/PST/VG

800 MHz

PVZJ2G PVZK2G

The GE DES M-PD Voice Guard Personal Radio is a two-way, FM, communications system consisting of transmit and receive circuitry with a frequency synthesizer controlled by a microprocessor.

The prices of the GE DES M-PD Voice Guard Personal Radio range from $2,998.00 to $3,348.00 depending on the model ordered. For pricing information on the 400 MHz and 800 MHz PST versions contact GE.

The GE DES M-PD Voice Guard equipped Personal Radio is identified as USGEID 00000037.

22. Motorola DES SABER Handheld Radios

Secure SABER VHF

H43QXN7139_N/H99QX + 053H
H43QXJ7139_N/H99QX + 059H
H43QXK7139_N/H99QX + 063H
H43YXN7139_N/H99QX + 052H Sub.
H33QXN7139_N/H99QX + 051H
H33QXJ7139_N/H99QX + 058H
H33QXK7139_N/H99QX + 062H
H33YXN7139_N/H99QX + 050H

Secure SABER UHF

H44QXN7139_N/H99QX + 057H
H44QXJ7139_N/H99QX + 061H
H44QXK7139_N/H99QX + 065H
H44YXN7139_N/H99QX + 056H Sub.
H34QXN7139_N/H99QX + 055H
H34QXJ7139_N/H99QX + 060H
H34QXK7139_N/H99QX + 064H
H34YXN7139_N/H99QX + 054H Sub.

Secure Saber Mid-Band

H42QXN7139_N/H99QX + 076H
H42YXN7139_N/H99QX + 077H Sub.
H42QXJ7139_N/H99QX + 078H
H42QXK7139_N/H99QX + 079H

Secure Systems Saber

H44TUA5170_N/H99QX + 067H
H44TUK5170_N/H99QX + 080H
H34TUK5170_N/H99QX + 081H
H43TUK5170_N/H99QX + 099H
H33TUK5170_N/H99QX + 100H

The Motorola DES SABER handheld radio is a two-way, FM, synthesized handheld radio system that utilizes digital synthesis techniques to provide up to 120 channels of transceiver capability. In addition, there have been three other versions of the Saber Radio endorsed. Two

submersible VHF and UHF models are now endorsed as well as a Mid-Band version. These models are identified by the "YKN" portion of the factory reference number as well as the abbreviation "Sub.". The VHF Mid-Band Saber has had the RF Module adapted so the radio can operate in the 66-88 MHz frequency band. Also endorsed are the five models of the Systems Saber products. This family of Saber radios has been modified by the addition of a more powerful microprocessor to accomodate a trunking feature for these particular models.

For pricing information on all of the Motorola DES SABER Handheld Radios, contact your Motorola representative.

The Motorola DES SABER Handheld Radios are identified as USGEID 00000038.

23. GE DES VGT-9600 Voice Guard Module

The GE DES VGT-9600 Voice Guard Module employs DES to provide encyption/decryption for trunked mobile radios. The VGT-9600 can also be utilized in a fixed station application. In addition, the product can also operate with GE conventional mode DES radios.

For pricing information on the GE DES VGT-9600 Voice Guard Module contact GE.

The GE DES VGT-9600 Voice Guard Module is assigned USGEID 00000042.

24. Motorola DES SSTX Trunked Portable Radio.

H35LXC5170AN/H99LX + 071H
H35LXD5170AN/H99LX + 073H
* H25WKA5170_N/H99LX + 082H
* H35WKA5170_N/H99LX + 083H
* H35WKQ5170_N/H99LX + 084H
* H35WGA5170_N/H99LX + 085H
* H25WPA5170_N/H99LX + 086H
* H35WPA5170_N H99LX + 087H
* H35WPQ5170_N/H99LX + 088H
* H35WNA5170_N/H99LX + 089H
* H25WPQ5170_N/H99LX + 090H

The Motorola DES SSTX is a frequency synthesized commercial two-way FM trunked portable radio employing DES encyption/decryption for voice traffic. The SSTX can also operate in the conventional mode. The SSTX must be purchased with option H795AA (DES-XL).

* These models have also been endorsed and are available with either a rotary switch on the top of the radio to select coded/clear mode or via the keypad button on the front of the radio.
For pricing information on the Motorola DES SSTX Trunked Portable Radio, contact Motorola.

The Motorola DES SSTX Trunked Portable Radio is identified as USGEID 00000043.

NOTE: The Motorola DES radios and the GE DES radios are not interoperable in the cipher mode. In addition, Motorola DES products equipped with new DES-XL Modules are not interoperable with Motorola DES products that utilize the old DES Modules. This is a result of a new encryption scheme employed in the DES-XL Module.

POINTS OF CONTACT FOR NSA FS-1027 DES ENDORSED EQUIPMENTS

Voice Radio Equipment (2 vendors in alphabetical order)

1. Mr. Dan Lynch
   General Electric Company
   1680 Mountain View Road
   Lynchburg, VA 24502
   Telephone: (804) 528-7458

2. Mr. Paul Tinney
   Motorola Incorporated
   1701 McCormick Drive
   Landover, MD 20785
   Telephone: (301) 925-2490

INTRODUCTION TO THE PROTECTED NETWORK SERVICES LIST

"Protected Network Services" - Telecommunications systems, approved by NSA for the transmission of Sensitive but Unclassified U.S. Government information of U.S. Government departments, agencies, and their contractors involving intelligence activities related to the national security, the command and control of military forces, equipment that is integral to a weapons system, or matters critical to the direct fulfillment of military or intelligence missions, that are available from commercial communications companies. The term "sensitive information" means any information, the loss, misuse, or unauthorized access to or modification of which could adversely affect the national interest or the conduct of Federal programs, or the privacy to which individuals are entitled under section 552a of Title 5, United States Code (the Privacy Act), but which has not been specifically authorized under criteria established by an Executive Order or an Act of Congress to be kept secret in the interest of national defense and foreign policy. There are three types of Protected Network Services; Private Line (PL), Flexibly Defined Network (FDN), and Switched Protected Routing Service (SPRS).

PRIVATE LINE (PL): A Private Line is a full-period circuit leased by a customer for its exclusive use, connected by two or more terminal equipments only to each other and operated independently of any central office switched interconnections. Approved Private Line service requires the use of encryption or unencrypted cable circuits, and computer security.

FLEXIBLY DEFINED NETWORK (FDN): A Flexibly Defined Network is a logical association of sequential links in each direction of transmission between two or more terminals. Such networks may exist as an adjunct to, but independent of, both full-period private line service and non-private commercial switched service. No permanent physical circuit is maintained between the two terminations. Approved Flexibly Defined Network service MAY INCLUDE an appropriate mix of encrypted radio, unencrypted radio, unencrypted cable circuits, and computer security in consideration of the areas traversed by the network.

SWITCHED PROTECTED ROUTING SERVICE (SPRS): SPRS is currently in the development stages with initial implementation tentatively scheduled for FY 92. SPRS will be a tariffed offering provided by the commercial carriers for the protection of Sensitive but Unclassified data through the Public Switched Telephone Network nationwide.

PURPOSE

The purpose of this chapter is to provide information on where to acquire the "approved" Protected Network Services. The carrier points of contact listed in this chapter will provide guidance on the types of Protected Network Services available. Agreements have been made with these carriers to provide NSA approved Protected Network Services. All services may not be provided in all areas by all companies listed. The carrier points of contact listed in this chapter will provide guidance on the types of Protected Network Services available. Agreements have been made with these carriers to provide NSA approved Protected Network Services. Working in conjunction with the carriers, NSA has formally reviewed and approved the techniques and services in the offerings as meeting the requirements needed to protect Sensitive but Unclassified information. This approval provides assurance to

the customer that a criteria has been met sufficient for the protection of this level of data commensurate with a perceived threat. For additional information, please contact V33, Systems Protection Division, (301) 684-7057.

PROTECTED NETWORK SERVICES LIST

Company Name (Listed In Alphabetical Order)	Point of Contact	Phone No.
AT&T Communications	Mr. David Johnson 8403 Colesville Road Attn: 15ND18 Silver Spring, MD 20910	(301)608-4905
Bell Atlantic	Ms. Camille Mazzan 1600 Wilson Blvd. Suite 600 Arlington, VA 22209	(703)974-2273
CONTEL A.S.C.	Mr. Don Nowakoski Government Network Division 7916 Westpark Drive McLean, VA 22102	(703)790-2158
Metromedia/ITT	Mr. Leonard Plotkin 1901 N. Moore St. Rosslyn, VA 22209	(202)276-1544
MCI Telecommunications	Mr. Tom Will 8003 Westpark Drive McLean, VA 22102	(703)749-7070
PACIFIC BELL	Gail Hutchens 2600 Camino Ramon Blvd. Room 2E200 San Ramon, CA 94583	(415)823-5013
	Mal Ziegler 2600 Camino Ramon Blvd. Room 2S950 San Ramon, CA 94583	(415)823-3088
US SPRINT	Mr. Jay Nelson 13221 Woodland Park Rd. Herndon, VA 22071	(703)904-2099
	Mr. Allen Wild 13221 Woodland Park Rd. Herndon, VA 22071	(703)904-2104

CHAPTER FOUR

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INTRODUCTIONS TO CHAPTER FOUR

INTRODUCTION TO NATIONAL COMPUTER SECURITY CENTER

The primary goal of the National Computer Security Center (NCSC) is to encourage the widespread availability of trusted systems. This goal is realized, in large measure, through the NCSC's Trusted Product Evaluation Program. This program focuses on the technical evaluation of the protection capabilities of commercially produced and supported systems. The standards against which products are evaluated are the Department of Defense Trusted Computer System Evaluation Criteria (TCSEC), the Trusted Network Interpretation of the Trusted Computer System Evaluation Criteria (TNI), the Computer Security Subsystem Interpretation of the Trusted Computer System Evaluation Criteria (CSSI), the Trusted Database Management System Interpretation of the Trusted Computer System Evaluation Criteria (TDI).

In reading the information contained in this chapter, the following definitions will be helpful to the reader.

Accreditation - a political and/or business decision relative to the acceptability of a system. The Accreditor is the authority who makes the final decision on the disposition of the system for which he is responsible. He may decide to either:

(a) accept the system, with any attendant security risks;

(b) choose to operate the system under some set of constraints (e.g., limited operations, limited user set, test and repair mode);

(c) reject the system as being unfit for its intended use.

The Accreditation authority is responsible for certification (e.g., detailed technical analyses) performed. While his decision is expected to take into account the results and recommendations of any such certification activities, his decision need not be in conformance with any specific set of recommendations (i.e., his decision is not based entirely upon technical considerations).

Certification - A technical analysis of a system relative to a set of system requirements. Results in a determination as to whether or not the system, as implemented, is capable of delivering the services or characteristics (e.g., security) specified in the system requirements definition. The Certification Authority is responsible to the Accreditor, and provides him the results of the analysis, along with any identifiable risks in operating the system as originally specified, as well as any recommendations which will influence the Accreditor's final decision. The recommendations may be of the form:

(a) accept the system as is;

(b) operate the system in constrained mode until appropriate remedial action(s) is(are) taken;

(c) operate the system under conditions different from those specified in original requirements;

(d) reject the system as incapable of meeting the specified operational requirements.

Endorse - To sanction; to approve for use.

Authentication - The determination of conformance with fact or reality, of being actually and exactly what is claimed. Commonly used in connection with establishing identity (Identification and Authentication, or I&A), a process whereby an identity is claimed and the validity of the claim established (e.g., via a password unique to the claimed identity).

Evaluation - The assessment for conformance with a pre-established metric, criteria, or standard.

We are interested in hearing any suggestions that you have to improve Chapter 4 of this publication. We want to provide accurate and useful data. Please address suggestions to:

National Computer Security Center
ATTN: LT Charles G. Menk III, C716
Fort George G. Meade, MD
20755-6000

INTRODUCTION TO THE EVALUATED PRODUCTS LIST (EPL)

The National Computer Security Center (NCSC) was created to study and implement Trust Technology for computers and to encourage the widespread availability and use of trusted computer security products. One way in which we encourage the development and use of trusted computer security products is through the Trusted Product Evaluation Program. Under this program, the NCSC evaluates the technical protection capabilities of computer security products against well-defined, published evaluation criteria.

The NCSC's Product Evaluation Program is focused on the technical evaluation of the protection capabilities of off-the-shelf, commercially produced and supported systems that meet the computer security needs of government departments and agencies. This product evaluation culminates in the publication of an Evaluated Products List (EPL) report and is independent of any consideration of overall system performance, potential applications or particular processing environment.

The primary standard against which products are evaluated is the *Department of Defense Trusted Computer System Evaluation Criteria* (DOD 5200.28-STD), hereafter referenced as the "Criteria." The Criteria classifies systems into seven hierarchical classes based on features and assurances to support three types of security requirements – policy, accountability, and assurance. Assurance requirements contribute to confidence that the required features are present and are functioning as intended. Other standards applied to products, when appropriate, are the *Trusted NETWORK Interpretation of the Trusted Computer System Evaluation Criteria* (NCSC-TG-005, Version 1) and the *Computer Security Subsystem Interpretation of the Trusted Computer System Evaluation Criteria* (NCSC-TG-009, Version 1). A characterization of each of the classes is contained in the Appendix.

PURPOSE

The aim of the EPL is to provide ADP system developers, managers and users an authoritative evaluation of a system's relative suitability for use in processing sensitive information. The products on the EPL have been evaluated against the Criteria and assigned an Overall Evaluation Class rating. The security evaluation of a product is contained in a formal report that is available from either the Government Printing Office or the National Technical Information Service (NTIS) of the Department of Commerce.

The rating given to the product is the highest class for which all the requirements in the Criteria have been met. The Overall Evaluation Class ratings given in the EPL apply only to the specific hardware/software configurations listed in the EPL entry. As such, the rating indicates that the product met or exceeded each of the requirements for the Overall Evaluation Class. Although the product was subjected to the detailed testing specified in the Criteria Guidelines, it must be emphasized that such testing is not sufficient to guarantee the absence of flaws in the product. Rather, the EPL entry indicates that the features and assurances of the product appear to provide the classes of protection characterized by the Overall Evaluation Class.

The EPL entry does not constitute any general or overall endorsement of the product by the NCSC, nor does it constitute any DoD certification or accreditation of the product for use in classified or sensitive processing environments. Rather, the evaluation provides an essential part of the technical evidence required for such certification and accreditation. Ultimate responsibility for the continuing integrity provided by the security mechanisms of any product evaluated by the NCSC rests solely with the vendor. The EPL is available to vendors of evaluated products to actively market and advertise the Overall Evaluation Class achieved by their products to procurement authorities and the general public.

Products are separated into general-purpose operating systems, add-on packages, and subsystems. An add-on package is a facility that runs in conjunction with a specific operating system and is not, by itself, a system that performs all the functions traditionally ascribed to an operating system. Initially, the evaluation of an add-on package did not include a complete evaluation of the underlying operating system for which the add-on package was designed. The evaluations which were performed in that manner are identified in the add-on package section of this document. Evaluations of add-on systems now include an equally thorough analysis of the security-relevant mechanisms contained in the underlying operating system because the integrity of the add-on package ultimately depends upon the integrity of the operating system. These systems are identified in the operating systems section of this document.

Subsystems are special-purpose products that can be added to existing computer systems to increase security and implement only a subset of the security features identified in the Criteria. Features we evaluate are identification and authentication, audit, access control, and object reuse. Subsystems are evaluated against the Computer Security Subsystem Interpretation of the Trusted Computer System Evaluation Criteria (Subsystem Interpretation). The ratings assigned use a special nomenclature to distinguish them from complete system ratings.

Subsystem ratings are based on the Evaluation Criteria Division D, which is reserved for products that do not meet all of the requirements of a higher Evaluation Class. A characterization of the subsystem ratings within Division D is contained in Appendix A. Before the Subsystem Interpretation was published, subsystem evaluations were based only on the Criteria, and ratings were not given to evaluated subsystems. A computer security subsystem evaluation does not address or attempt to rate the overall security of the total processing environment.

A subsystem evaluation is concerned only with the subsystem product, and not any host system that it may support. Because of this, the users of evaluated subsystems must be aware of the implicit dangers inherent in assuming too much about the degree of protection provided by many subsystem products. One area that the user must be aware of is his own responsibility for the proper installation and maintenance of the interface between the subsystem and the host computer. A second concern for the user is that any subversion of a host computer by means not protected by a subsystem product may invalidate the use of the subsystem product, even though the subsystem continues to function correctly.

PRODUCT BULLETINS

The Product Bulletins are synopses of systems currently undergoing formal evaluation by the NCSC. They include the candidate rating for the system. Candidate ratings in the Product Bulletins are not an official evaluation by the NCSC, but are an estimate of the highest class for which the product has displayed some evidence for each of the requirements in the Criteria. The evaluation and testing requirements from the Criteria for the specified candidate rating class will be used to evaluate the product and establish an Overall Evaluation Class rating and EPL entry. Product Bulletins are superseded when the formal evaluation is complete and the EPL rating is issued.

RATING MAINTENANCE PHASE (RAMP)

The NCSC has developed the Rating Maintenance Phase (RAMP) to keep its EPL current. One of the primary functions of the NCSC is the evaluation of commercial products using the Criteria, followed by publication of the resulting ratings in the EPL. Experience shows that a full evaluation requires significant resources and time, and the NCSC has been hard-pressed to keep pace with the release cycle of the evaluated products. As a result, the "rated" version is almost never the "current" version of the product.

The Trusted Product Evaluation Program has become so successful that the resources needed to re-evaluate each new version of a product are simply not available. Thus, the NCSC has initiated RAMP. Limited to maintenance of a specific rating, RAMP provides a mechanism that will permit the vendor to maintian the security rating of an evaluated product on subsequent releases or versions, as long as the program defined by the NCSC is adhered to by the developer. A re-evaluation will be required if the product is a cante for a higher rating. Additional information may be found in the *Rating Maintenance Phase: Program Document* (NCSC-TG-013, Version 1).

POLICY ON EVALUATION OF DATA REMANENCE PRODUCTS

POLICY

Effective immediately, the NCSC will no longer evaluate the class of products known variously as overwrite, data remanence, magnetic remanence, data sanitization, or media clearance products.

RATIONALE

With advances in technology, research is required to determine the extent to which overwrite or erasure operations must be conducted to purge or erase magnetic media for declassification. Furthermore, because most of these products are utility programs with little or no integration into the trusted base of the operating system, we are unable to make general statements about product behavior independent of the specific operational environment. Additionally, products are now emerging in the marketplace that are based not on applications-level software or operating system utilities but on actual physical devices that perform the erasure function electromagnetically.

At this time, we do not know enough about the physics of these devices to comment on them and advise our customers concerning the characteristics of this new hardware approach to solving the sanitization problem.

FUTURE

Because of the need for these products, we plan to initiate a program to research the overwrite parameters required to ensure information is no longer retrievable from magnetic media. We anticipate revisions to our publication *Department of Defense Magnetic Remanence Security Guideline*, CSC-STD-005-85, (the "Blue Book") upon completion of the research into these issues. Until these efforts are complete, system accreditors must prudently manage risk.

If you have questions concerning this matter, please contact the NCSC at (301) 859-4463, or by writing to:

National Computer Security Center
ATTN: C81
Fort George G. Meade, MD
20755-6000

The National Computer Security Center Trusted Product Evaluation Program

Process Phases:

Definitions of Evaluation Phases

Vendor Assistance Phase (VAP) - This is the first of the three phases of a typical evaluation of a system, network or network component. (Subsystems move directly into Formal Evaluation). During VAP, the NCSC serves primarily in an advisory capacity. The majority of the work done in this phase is conducted by the vendor, who thus controls the schedule. Because this phase is vendor-driven, vendors with considerable experience or understanding of trust technology may be able to expedite the completion of their product development.

While inclusion in this phase of an evaluation represents a vendor's commitment to trust technology, it should not be taken as a guarantee that the product will successfully complete evaluation or become commercially available. Both the development and the evaluation of trusted products can be a considerable challenge to vendors, and this phase is intended to ensure that only those products which can reasonably be expected to proceed through a complete evaluation continue into the Design Analysis phase.

During VAP the vendor completes the development of the product, designs security test procedures, and drafts documentation while the NCSC ensures that the vendor's documentation of these efforts reflects an understanding of trust technology and evaluation requirements as they are articulated in the *Trusted Computer System Evaluation Criteria* (TCSEC). Upon satisfactory completion of this effort, the evaluation team will recommend to NCSC management that the product begin Design Analysis, the second phase of the evaluation process.

POCs for products in the Vendor Assistance Phase are listed in the green section of the Evaluated Products List for Trusted Computer Systems.

Design Analysis Phase (DAP) - In this second phase of evaluation, the product is largely completed and the evaluation team develops a detailed understanding of the system, its security features and its assurances. In this phase, the evaluation team is augmented, undergoes system internals training to gain an understanding of the product's details, and performs analysis of the product's design. This is accomplished through vendor documentation and team-vendor interaction. The goal of this analysis is to gain assurance that the system, if implemented as designed, is likely to meet the product's candidate level of trust. This phase culminates with an Initial Product Assessment Report (IPAR), which documents the evaluation team's understanding of the system based on the information the vendor has provided.

The NCSC Technical Review Board (TRB) reviews this report to ensure that the evaluation team has not omitted any aspect of the product analysis and can substantiate that the product should enter the formal phase. Products in Design Analysis must become commercially available within twelve months of the start of this phase (if not already available).

POCs for products in the Design Analysis Phase are listed in the tan section of the Evaluated Products List for Trusted Computer Systems.

Formal Evaluation (FE) - In this final phase of evaluation, the evaluation team analyzes and tests the implementation's compliance with the TCSEC requirements for the candidate level of trust (or the requirements of an appropriate interpretation of the TCSEC, such as the *Trusted Network Interpretation*). The next step of the evaluation is the generation of the Final Evaluation Report. As with the IPAR, this report is reviewed by the NCSC TRB, which ensures that the team has verified that the product meets the candidate level of trust.

Product Bulletins, issued when product enter the Formal Evaluation Phase, are printed in the blue section of the Evaluated Products List for Trusted Computer Systems.

Evaluated product entries are listed in the white section of the Evaluated Products List for Trusted Computer Systems.

Rating Maintenance (RAMP) - Products evaluated at the C2 or B1 level of trust then continue with the Rating Maintenance Phase. The purpose of this phase is to provide currently available trusted products. Without RAMP, only the initial evaluated version is a trusted system with an Orange Book rating. RAMP builds cumulatively upon the evidence and assurance established by a product evaluation, with the primary responsibility for maintaining product trust lying with the vendor. The vendor follows strict procedures that integrate security analysis, configuration control, and evidence accumulation into the development process. The NCSC then extends the product rating to each successive release by ascertaining that the vendor has executed all rating maintenance responsibilities fully and correctly.

Changes in the EPL - Changes in the Evaluated Products List since its most recent publication are highlighted in the orange section of the chapter. These changes include deletions, additions, schedule changes (most notably for those products in the Formal Evaluation phase), and phase changes (e.g., as a product advances from VAP to DA, this progress will be highlighted on the Change pages).

NOTE: The National Computer Security Center is committed to protecting vendor proprietary information, including both marketing and technical data. This is considered to be a serious responsibility and will not, under any circumstances, be neglected in order to provide additional information about products under evaluation or their progress through the evaluation program. For additional information about products under evaluation by the National Computer Security Center, users of the Evaluated Products List are invited to contact the vendor POCs provided within this list.

Trusted Computer System Evaluation Criteria Divisions and Classes

Division D: Minimal Protection

This division is reserved for those systems that have been evaluated but fail to meet all of the requirements for a higher evaluation division. This division is divided into classes only for subsystems as described below in "Subsystem Evaluations".

Division C: Discretionary Protection

Classes in this division provide for discretionary (need-to-know) protection and, through the inclusion of audit capabilities, for accountability of subjects and the actions they initiate.

Class C1: Discretionary Security Protection

The Trusted Computing Base (TCB) of a class C1 system nominally satisfies the discretionary access security requirements by providing separation of users and data. It incorporates some form of credible controls capable of enforcing access limitations on an individual basis, i.e., ostensibly suitable for allowing users to be able to protect project or private information and to keep other users from accidentally reading or destroying their data. The class C1 environment is expected to be one of cooperating users processing data at the same level(s) of security.

Class C2: Controlled Access Protection

Systems in this class enforce a more finely grained discretionary access control than C1 systems, making users individually accountable for their actions through login procedures, auditing of security-relevant events, and resource isolation.

Division B: Mandatory Protection

The notion of a TCB that preserves the integrity of sensitivity labels and uses them to enforce a set of mandatory access control rules is a major requirement in this division. Systems in this division must carry the sensitivity labels with major data structures in the system. The system developer also provides the security policy model on which the TCB is based and furnishes a specification of the TCB. Evidence must be provided to demonstrate that the reference monitor concept has been implemented.

Class B1: Labeled Security Protection

Class B1 systems require all the features required for a class C2. In addition, an informal statement of the security policy model, data labeling, and mandatory access control over named subjects and objects must be present. The capability must exist for accurately labelling exported information. Any flaws identified by testing must be removed.

Class B2: Structured Protection

In class B2 systems, the TCB is based on a clearly defined and documented formal security model that requires the discretionary and mandatory access control enforcement found in class B1 systems be extended to all subjects and objects in the ADP system. In addition, covert channels are addressed. The TCB must be carefully structured into protection-critical and non-protection-critical elements. The TCB interface is well-defined and the TCB design and implementation enable it to be subjected to more thorough testing and more complete review. Authentication mechanisms are strengthened, trusted facility management is provided in the form of support for system administrator and operator functions, and stringent configuration management controls are imposed. The system is relatively resistant to penetration.

Class B3: Security Domains

The class B3 TCB must satisfy the reference monitor requirements that it mediate all accesses of subjects to objects, be tamper-proof, and be small enough to be subjected to analysis and tests. To this end, the TCB is structured to exclude code not essential to security policy enforcement, with significant system engineering during the TCB design and implementation directed toward minimizing its complexity. A security administrator is supported, audit mechanisms are expanded to signal security-relevant events, and system recovery procedures are required. The system is highly resistant to penetration.

Division A: Verified Protection

This division is characterized by the use of formal security verification methods to assure that the mandatory and discretionary security controls employed in the system can effectively protect classified or other sensitive information stored or processed by the system. Extensive documentation is required to demonstrate that the TCB meets the security requirements in all aspects of design, development and implementation.

Class A1: Verified Design

Systems in A1 are functionally equivalent to those in class B3 in that no additional architectural features or policy requirements are added. The distinguishing feature of systems in this class is the analysis derived from formal design specification and verification techniques and the resulting high degree of assurance that the TCB is correctly implemented. This assurance is developmental in nature, starting with a formal model of the security policy and a Formal Top-Level Specification (FTLS) of the design. In keeping with the extensive design and development analysis of the TCB required of systems in class A1, more stringent configuration management is required and procedures are established for securely distributing the system to sites. A system security administrator is supported.

Subsystem Evaluations:

Although the requirements for subsystems are derived from the TCSEC, the ratings for subsystems do not directly reflect the TCSEC class from which they are derived. Since subsystems do not meet all of the requirements for a class C1 or higher computer system, it is most appropriate to associate subsystem ratings with the D division of the TCSEC. Subsystem ratings are applied to each subsystem function evaluated (e.g., Audit). A subsystem may be awarded a rating under one or more fuctions. Possible ratings for individual functions are:

SUBSYSTEM FUNCTION	POSSIBLE RATING
Discretionary Access Control	DAC/D DAC/D DAC/D1 DAC/D2 DAC/D3
Object Reuse	OR/D OR/D2
Identification and Authentication	I&A/D I&A/D1 I&A/D2
Audit	AUD/D AUD/D2 AUD/D3

The D1 class is assigned to subsystems that meet the interpretations for requirements drawn from the C1 TCSEC class. Likewise, the D2 class consists of requirements and interpretations that are drawn from the C2 TCSEC class. The D3 subystem class is reserved for DAC subsystems and audit subsystems that meet the B3 functionality requirements for those functions.

LIST OF COMPANIES WORKING WITH THE NCSC

The following companies are working with the National Computer Security Center in the development of Trusted Computing Products:

Addamax
Amdahl
American Computer Security Industries
A T & T UNIX System Laboratories
Aerospace
Boeing
Concurrent Computer Corporation
Convex Computer Corporation
Cray Research Inc.
Digital Equipment Corporation
Gemini Computers, Inc.
Harris Corporation
Hewlett Packard Computer Systems Div.
HFSI, Inc.
International Business Machines Corp.
Informix
Loral Command and Control Systems
Oracle Corporation Sequent Computer Systems
Silicon Graphics Inc.
Sun Microsystems Federal, Inc.
Tandem Computers Inc.
Trusted Information Systems, Inc.
Unisys Corporation
Wang Laboratories, Inc.

EVALUATED PRODUCTS LIST

for

TRUSTED COMPUTER SYSTEMS

As of 5 December 1991

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INDEX OF PRODUCTS BY VENDOR

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Convex Computer Corp.	Convex Unix	DAP	4-2b.1
Cortana Systems Corp.	PC Security	Completed	4-3d.10
Cray Research Inc.	Network Component	VAP	4-2a.2
Data General Corp	AOS/VS	Completed	4-3b.21
Digital Equipment Corporation	VAX/VMS 4.3	Complete RAMP	4-3f.1
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Enigma Logic., Inc	Safeword	Completed	4-3d.6
E-X-E Software Security	OnGuard	Completed	4-3d.26
Eyedentify International Systems Corp.	Eyedentify Information Security System (EIS)	Completed	4-3d.29
Fischer International	Watchdog	Completed	4-3d.3
	Watchdog Armor	Completed	4-3d.31
Gemini Computers, Inc.	Gemini Trusted Network Processor	DAP	4-2b.3
Gordian Systems, Inc.	Access Key	Completed	4-3d.1
Gould, Inc., Computer Systems Division	UTX/32S	Completed	4-3b.7

Vendor	Product/Product Type	Evaluation Status	Page
Harris Corporation	CX/SX	DAP	4-2b.1
Hewlett Packard Computer Systems Div.	MPE V/E	Completed	4-3b.19
	HP-UX BLS	DAP	4-2b.1
Honeywell Information Systems, Inc.	Multics	Completed	4-3b.3
	SCOMP	Completed	4-3b.1
HFSI Inc.	XTS-200	Formal	4-3a.3
International Business Machines Corp.	MVS/RACF	Completed	4-3c.1
	MVS/XA with RACF	Completed	4-3b.14
	VM/SP with RACF	Completed	4-3b.30
	MVS-ESA	Completed	4-3b.33
	AIX Compartmented Mode Workstation	DAP	4-2b.1
	Proprietary Operating System	VAP	4-2a.1
IDENTIX Corp.	IDX-50	Completed	4-3d.9
Infosafe Corp.	X-LOCK-50	Completed	4-3d.15
Infotron	INX 4400	Completed	4-3d.16
Informix	Database Management System	VAP	4-2a.2
Key Concepts,Inc.	SureKey	Completed	4-3d.8
Loral Command and Control Systems	MLS 100	DAP	4-2a.2
Micronyx, Inc.	TriSpan	Completed	4-3d.20
Oracle Corporation	Database Management System	VAP	4-2a.2

Vendor	Product/Product Type	Evaluation Status	Page
Prime Computer,Inc.	Primos	Completed	4-3b.17
Pyramid Development Corp.	PC/DACS	Completed	4-3d.24
Secureware, Inc.	Compartmented Mode Workstation Plus	Completed	4-3b.40
Security Dynamics, Inc.	ACE	Completed	4-3d.5
Security Microsystems Incorporated	LOCKIT Professional 2.10	Completed	4-3d.33
Sequent Computer Systems	Unix Operating System	VAP	4-2a.1
Silicon Graphics Inc.	Unix operating system	VAP	4-2a.1
Spectrum Manufacturing, Inc.	DPS 800/12	Completed	4-3d.11
Sun Microsystems Federal,Inc.	SunOS	DAP	4-2b.1
Sytek, Inc.	PFX Passport	Completed	4-3d.4
Tandem Computers Inc.	Guardian-90	DAP	4-2b.2
Trusted Information Systems, Inc.	Trusted XENIX	Completed	4-3b.38
	Trusted XENIX running on 286/386 Clones	DAP	4-2b.1
Unisys Corp.	A Series	Completed	4-3b.9
	OS 1100	Completed	4-3b.27
	OS 1100/2200 Release SB3R6	Complete RAMP	4-3f.7
Verdix Corp.	VSLAN 5.0	Completed	4.3e.1
Wang Laboratories., Inc.	SVS/OS CAP 1.0	Completed	4-3b.36
	MicroControl	Completed	4-3d.22
	SVS/OS CAP 1.01	Complete RAMP	4-3f.10

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INDEX OF PRODUCTS BY LEVEL OF TRUST

INDEX OF COMPLETED AND FORMAL EVALUATIONS BY LEVEL OF TRUST

Subsystems:

C1:

Vendor	Product/Product Type	Evaluation Status	Page
International Business Machines Corp.	MVS/RACF	Completed	4-3c.1

C2:

Computer Associates International	ACF2/MVS	Completed	4-3c.3
	acf2/VM	Completed	4-3b.11
	Top Secret	Completed	4-3c.5
Concurrent Computer Corp.	OS-32	Formal	4-3a.8
Control Data Corporation	NOS	Completed	4-3b.5
Data General Corp.	AOS/VS	Completed	4-3b.21
Digital Equipment Corp.	VAX/VMS 4.3	Completed	4-3f.1
Gould, Inc., Computer Systems Division	UTX/32S	Completed	4-3b.7
Hewlett Packard Computer Systems Division	MPE V/E	Completed	4-3b.19
International Business Machines Corp.	MVS/XA with RACF	Completed	4-3b.14
	VM/SP with RACF	Completed	4-3b.30
Prime Computer, Inc.	Primos	Completed	4-3b.17
Unisys Corp.	A Series	Completed	4-3b.9
Wang Laboratories, Inc.	SVS/OS CAP 1.0	Completed	4-3b.36
	SVS/OS CAP 1.01	Complete RAMP	4-3f.10

B1:

Vendor	Product/Product Type	Evaluation Status	Page
American Telephone and Telegraph Co.	System V/MLS Re: 1.1.2	Completed	4-3b.24
	System V/MLS Re: 1.2.0	Complete RAMP	4-3f.4
International Business Machines Corp.	MVS-ESA	Completed	4-3b.33
Secureware, Inc.	Compartmented Mode Workstation Plus	Completed	4-3b.40
Unisys Corp.	OS 1100	Completed	4-3b.27
	OS 1100/2200 Re: SB3R6	Complete RAMP	4-3f.7

B2:

A T & T Unix System Laboratory Inc.	Unix System V Release 4.1	Formal	4-3a.5
Honeywell Information Systems, Inc.	Multics	Completed	4-3b.3
Trusted Information Systems	Trusted XENIX	Completed	4-3b.38
	Trusted XENIX running on 286/386 Clones	DAP	4-2b.1
Verdix Corp.	VSLAN 5.0	Completed	4-3e.1

B3:

HFSI	XTS-200	Formal	4-3a.3

A1:

Vendor	Product/Product Type	Evaluation Status	Page
Boeing Aerospace	SNS	Completed	4-3e.5
	SNS + NM	DAP	4-2b.3
Honeywell Information Systems, Inc.	SCOMP	Completed	4-3b.1

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CHANGES TO THE EVALUATED PRODUCTS LIST

CHANGES TO THE EVALUATED PRODUCTS LIST

Vendor	Product/Product Type	Level of Trust	Page

Additional Products in the Vendor Assistance Phase:

NONE

Products Transitioning from Vendor Assistance Phase to Design Analysis Phase:

NONE

Additional Products in the Design Analysis Phase:

NONE

Products Transitioning from Design Analysis Phase to Formal Evaluation Phase:

Concurrent Computer Corp.	OS-32	C2	4-3a.8

Vendor	Product/Product Type	Level of Trust	Page
Completed Systems Evaluations:			
NONE			
Completed Subsystem Evaluations:			
NONE			
Completed RAMP Evaluations:			
Wang Laboratories, Inc.	SVS/OS CAP 1.01	C2	4-3f.10
Products No Longer Under Evaluation:			
Microsoft Corporation	Proprietary operating system		

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PRODUCT POINTS OF CONTACT BY PHASE OF EVALUATION

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PRODUCTS IN THE VENDOR ASSISTANCE PHASE

VENDOR ASSISTANCE PHASE POTENTIAL PRODUCTS LIST
POINTS OF CONTACT

I. Trusted Systems and Operating Systems (UNIX-like Systems)

Vendor	POC and #	Product Description
Sequent Computer Systems Inc.	David Aucsmith (503) 578-4436	Unix based Operating System
Silicon Graphics Inc.	Linda Jo Dolny (415) 335-1021	Unix based Operating System

II. Trusted Systems and Operating Systems (Proprietary Systems)

Vendor	POC and #	Product Description
International Business Machines Corp.	Bill Vance (914) 766-1900	Proprietary Operating System
Computer Associates International	Lynn Grant (312) 714-7639	Proprietary Operating System

III. Network Systems and Network Components

Vendor	POC and #	Product Description
Amdahl Corporation	Bill O'Connel (408) 746-6891	Network Component
Cray Research, Inc.	Paul Falde (612) 683-5467	Network Component

IV. Data Base Management Systems

Vendor	POC and #	Product Description
Informix	Candice Novbakhtian (415) 926-6776	DBMS
Oracle Corporation	Linda Vetter (415) 506-6380	RDBMS

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DESIGN ANALYSIS PHASE

DESIGN ANALYSIS PHASE POTENTIAL EVALUATED PRODUCTS LIST POINTS OF CONTACT

I. Trusted Systems and Operating Systems (UNIX-like Systems)

Vendor	POC and #	Product and Candidate Division
Addamax Corp.	Randall J. Sandone (217) 359-0700	Compartmented Mode Workstation - B
Amdahl Corporation	Bill O'Connell (408) 746-6891	UTS/MLS
Convex Computer Corp	Blair Baker (214) 497-4536	Convex Unix - C
Digital Equipment Corporation	Paul T. Cummings (508) 264-5026	Compartmented Mode Workstation - B ULTRIX 1.0
Harris Corporation	Wendell Norton (305) 973-5201	CX/SX - B1
Hewlett Packard	Wayne Caccamo (408) 447-4020	HP-UX B Level System - B
International Business Machines Corp.	Tom Jackson (301) 240-7306	AIX Compartmented Mode Workstation -B
Sun Microsystems	Larry Baron (408) 276-3414	Compartmented Mode Workstation -B Sun-OS
Trusted Information Systems	George Mundy (301) 854-6889	Trusted XENIX Running on 286/386 clones - B

II. Trusted Systems and Operating Systems (Proprietary Systems)

Vendor	POC and #	Product Description
Digital Equipment Corporation	Dennis McMann (508) 486-6579	Security Enhanced VMS - C/B
Tandem Computers Inc.	William J. Buer (408) 725-6000	Guardian-90 - C

III. Network Systems and Network Components

Vendor	POC	Product and Candidate Division
Boeing Aerospace	Ken Takeuchi (202) 773-0628	SNS +NM - A
Gemini Computers Inc.	Dr. Tien F. Tao (408) 373-8500	Gemini Trusted Network Processor -A
Loral Command and Control Systems	Larry Megalo (719) 594-1012	MLS 100 - B

IV. Data Base Management Systems

Vendor	POC and #	Product Description
NONE		

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PRODUCTS IN FORMAL EVALUATION

PRODUCTS IN FORMAL EVALUATION

Vendor	POC and #
XTS-200/STOP HFSI, Inc. CSC-PB-90/003	Dr. George E. Webber (703) 827-3639
Unix System V Release 4.1 (Enhanced Security) AT&T Unix System Laboratory Inc. CSC-PB-91/001	Jeanne M. Baccash (201) 522-6345
OS-32 Concurrent Computer Corporation CSC-PB-91/002	Chris Kirschman (908) 758-7000

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COMPLETED EVALUATIONS LISTING

COMPLETED EVALUATIONS

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Fort George G. Meade MD 20755-6000

Final Evaluation Reports may also be obtained through NTIS by calling (703) 487-4650, or by sending a request to:

U.S. Department of Commerce
NTIS
5285 Port Royal Road
Springfield, VA 22161

GENERAL-PURPOSE OPERATING SYSTEMS:

System Name	Level of Trust	POC and #
Secure Communications Processor (SCOMP) **STOP Release 2.1** Honeywell Information Systems (HIS)	A1	Chuck Bonneau (703) 827-3346
GPO #: 008-000-00438-2 NTIS #: AD-A166-895 NCSC Final Report #: CSC-EPL-85/001		
Multics **MR11.0** Honeywell Information Systems (HIS)	B2	Gary Kaiser (602) 862-4634
NTIS #: TBD NCSC Final Report #: CSC-EPL-85/003		

GENERAL-PURPOSE OPERATING SYSTEMS (Continued):

System Name	Level of Trust	POC and #
Network Operating System (NOS) Security Evaluation Package Version 2.2 Control Data Corporation (CDC) NTIS #: AD-A208-003 NCSC Final Report #: CSC-EPL-86/003	C2	Paul Smith (612) 482-2776
UTX/32S Release 1.0 Gould, Inc., Computer Systems Division NTIS #: AD-A208-006 NCSC Final Report #: CSC-EPL-86/007	C2	Tom Latterner (301) 220-3400
A Series MCP/AS with InfoGuard Security Enhancement, Release 3.7 UNISYS Corporation NTIS #: AD-A221-812 NCSC Final Report #: CSC-EPL-87/003	C2	Jeffrey S. Bell (215) 986-6864
Access Control Facility 2 (acf2) Release 3.1 Computer Associates International NTIS #: AD-A207-926 NCSC Final Report #: CSC-EPL-87/007	C2	John Haggard (312) 714-7604

GENERAL-PURPOSE OPERATING SYSTEMS (Continued):

System Name	Level of Trust	POC and #
MVS/XA with RACF **Version 1.8** IBM Corporation NTIS #: TBD NCSC Final Report #: CSC-EPL-88/003	C2	David M. Frayne (914) 288-2612
Primos **Revision 2.1.0.1 DODC2A** Prime Computer, Inc. NTIS #: TBD NCSC Final Report #: CSC-EPL-88/009	C2	John Jones (508) 620-2800ext 4188
MPE V/E **Release G.03.04** with patch AV92 Hewlett Packard Company NTIS #: TBD NCSC Final Report #: CSC-EPL-88/0010	C2	Jim Schindler (408) 725-8900
AOS/VS Rev. 7.60 Data General Corp. NTIS #: TBD NCSC Final Report #: CSC-EPL-89/001	C2	Rick Strom (508) 898-4382
System V/MLS¡ **Release 1.1** American Telephone and Telegraph (AT&T) NTIS #: TBD NCSC Final Report #: CSC-EPL-89/003	B1	William Leighton (201) 386-7049

GENERAL-PURPOSE OPERATING SYSTEMS (Continued):

System Name	Level of Trust	POC and #
OS 1100 UNISYS Corp. NTIS #: TBD NCSC Final Report #: CSC-EPL-89/004	C2	Alan C. Roochvarg (215) 986-5209
IBM VM/SP with RACF International Business Machines NTIS #: TBD NCSC Final Report #: CSC-EPL-89/005	C2	David M. Frayne (914) 288-2612
VSLAN 5.0 Verdix Corporation NTIS #: TBD NCSC Final Report#: CSC-EPL-90/001	B2	Gaurang G. Shah (914) 378-7600
IBM MVS/ESA International Business Machines NTIS #: TBD NCSC Final Report #: CSC-EPL-90/002	B1	Peter Calloway (914)432-1504
SVS¡/OS CAP 1.0 Wang Laboratories, Inc. NTIS #: TBD NCSC Final Report #: CSC-EPL-90/004	C2	Steve Kane (508)459-5000
Trusted XENIX Version 1.1 Trusted Information Systems, Inc. NTIS #: TBD NCSC Final Report #: CSC-EPL-91/001	B2	Russ Munday (301) 852-6885

GENERAL-PURPOSE OPERATING SYSTEMS (Continued):

System Name	Level of Trust	POC and #
Compartmented Mode Workstation Plus SecureWare Inc.	B1	Michael C. McChesney (404) 876-4840

NTIS #: TBD
NCSC Final Report #: CSC-EPL-91/002

ADD-ON PACKAGES:

System Name	Level of Trust	POC and #
Resource Access Control Facility (RACF) **Version 1 Release 5** International Business Machines (IBM)	C1	David M. Frayne (914) 288-2612
NTIS #: AD-A150-625 NCSC Final Report #: CSC-EPL-84/001		
Access Control Facility 2 (ACF2) **Release 3.1.3** SKK, Inc.	C2	Computer Associates John Haggard (312) 714-7604
NTIS #: AD-A150-234 NCSC Final Report #: CSC-EPL-84/002		
Top Secret **Version 3.0** CGA Software Products Group	C2	Computer Associates John Haggard (312) 714-7604
NTIS #: AD-A157-600 NCSC Final Report #: CSC-EPL-85/002		

SUBSYSTEMS:

System Name	Level of Trust	POC and #
Gordian Systems Access Key **Release Version A.00** Gordian Systems		Thumbscan Peter Dignan (312) 954-2336
NTIS #: AD-A170-814 NCSC Final Report #: CSC-EPL-86/001		
Codercard CPP-300 Port Protector **CPP-300** Codercard Inc.		Robert Gray (714) 557-3444
NTIS #: AD-A170-542 NCSC Final Report #: CSC-EPL-86/002		
Watchdog PC Data Security **Version 4.1** Fischer International		Deborah Peterson (800) 237-4510
NTIS #: AD-A208-005 NCSC Final Report #: CSC-EPL-86/005		
Sytek PFX **A2000/A2100** Sytek	Racal-Guardata	Robert S. DiNatale (212) 551-1443
NTIS #: AD-A208-048 NCSC Final Report #: CSC-EPL-86/006		
Access Control Encryption (ACE) System **1986 16 port hardware version** Security Dynamics, Inc.		David Hammond (617) 547-7820
NTIS #: AD-A221-814 NCSC Final Report #: CSC-EPL-87/001		

SUBSYSTEMS (Continued):

System Name		Level of Trust	POC and #
Safeword UNIX-Safe **Version 3.1** Enigma Logic, Inc.			Robert Bosen (415) 827-5707
NTIS #: NCSC Final Report #:	AD-A221-811 CSC-EPL-87/002		
Sentinel **Version 3.13** Computer Security Corporation			Polaris, Inc. Don Pfister (703) 845-5600
NTIS #: NCSC Final Report #:	AD-A221-813 CSC-EPL-87/004		
Triad Plus **Version 1.3** Micronyx, Inc.			Mark Goode (214) 690-0595
NTIS #: NCSC Final Report #:	AD-A208-002 CSC-EPL-87/006		
SureKey Key Concepts, Inc.			Edward Levy (219) 234-0069
NTIS #: NCSC Final Report #:	AD-A208-030 CSC-EPL-87/008		
IDX-50 **Version 7** IDENTIX, Inc.			Linda Rolandol (202) 244-2980
NTIS#: NCSC Final Report #:	AD-A208-008 CSC-EPL-88/001		

SUBSYSTEMS (Continued):

System Name		Level of Trust	POC and #
Cortana Personal Computer Security System **Version 1.21** Cortana Systems Corporation			Computer Associates Kimberly Bell (516) 227-3300
NTIS #: NCSC Final Report #:	AD-A208-047 CSC-EPL-88/002		
DPS-800/12 Spectrum Manufacturing, Inc.			Clint Rogers (203) 786-5200
NTIS #: NCSC Final Report #:	AD-A208-029 CSC-EPL-88/004		
DIALBACK **Version 1.5** Clyde Digitial Systems			Jerry Cox (301) 760-2822
NTIS #: NCSC Final Report #:	TBD CSC-EPL-88/005		
Citadel Security Subsystem Computer Security Corporation			Polaris, Inc. Don Pfister (703) 845-5600)
NTIS #: NCSC Final Report #:	TBD CSC-EPL-88/006		
Private Access **Model L20** Computer Accessories, Inc.			Alyssa Levinson (619) 457-5500
NTIS #: NCSC Final Report #:	TBD CSC-EPL-88/007		

SUBSYSTEMS (Continued):

System Name		Level of Trust	POC and #
X-Lock-50 Infosafe Corporation			A. H. Jorgensen (404) 491-8044
NTIS #: NCSC Final Report #:	TBD CSC-EPL-88/008		
INX-4400 INFOTRON Inc		I&A / D	Dennis Biederman (703) 790-3500
NTIS #: NCSC Final Report #:	TBD CSC-EPL-89/002		
Tigersafe ALC Stealth Group		I&A/ D OR / D	Robert M. Wainwright (619) 437-4419
NTIS #: NCSC Final Report #:	TBD CSC-EPL-89/006		
TriSpan Micronyx, Inc.		I&A / D DAC / D AUD / D	Mark Goode (214) 690-0595
NTIS #: NCSC Final Report#:	TBD CSC-EPL-89/007		
MicroControl Wang Laboratories		I&A / D DAC / D AUD / D	Eileen Smith (508) 967-4275
NTIS #: NCSC Final Report #:	TBD CSC-EPL-89/008		

SUBSYSTEMS (Continued):

System Name		Level of Trust	POC and #
PC/DACS Pyramid Development Corp.		I&A / D DAC / D AUD / D OR /D	Todd G. Sun (203) 953-9832
NTIS #: NCSC Final Report #:	TBD CSC-EPL-89-009		
OnGuard E-X-E Software Security Inc.		I&A / D1 DAC /D1	Stephen Hicks (703) 556-0007
NTIS #: NCSC Final Report #:	TBD CSC-EPL-89/010		
Tigersafe 3.03.1EN ALC Group		I&A/D OR/D	Robert M. Wainwright (619)790-3500
NTIS #: NCSC Final Report #:	TBD CSC-EPL-90/005		
Eyedentify Information Security System Eyedentify Incorporated		I&A/D1	Steve Flego (503)645-6666
NTIS #: NCSC Final Report #:	TBD CSC-EPL-90/006		
WATCHDOG Armor Fischer International Systems Corp		I&A/D2 DAC/D2 AUD/D2 OR/D	Paul Palmer (800)237-4510
NTIS #: NCSC Final Report #:	TBD CSC-EPL-90/007		

SUBSYSTEMS (Continued):

System Name	Level of Trust	POC and #
LOCKIT Professional 2.10 Security Microsystems Incorporated		Ralph C. J. Ferrara (800) 345-7390
NTIS #: TBD NCSC Final Report #: CSC-EPL-91/001		
COMPSEC II American Computer Security Industries Inc.		Wynn Schwartau (615) 883-6741
NTIS #: TBD NCSC Final Report #: CSC-EPL-91/002		

NETWORK COMPONENTS

System Name	Level of Trust	POC and #
MLS LAN Secure Network Server System Boeing Aerospace		Ken Takeuchi (202) 773-0628

NTIS #: TBD
NCSC Final Reort #: CSC-EPL-91/005

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PRODUCTS IN RATING MAINTENANCE PHASE

RATING MAINTENANCE PRODUCTS
POINTS OF CONTACT

System Name	Level of Trust	POC and #
VAX/VMS Version 4.3 with September Systems Dispatch article 95.5.8, V4 Security Update and accompanying letter Digital Equipment Corporation (DEC) NTIS #: AD-A208-004 NCSC Final Report #: CSC-EPL-86/004	C2	Dennis McMann (508) 486-6579
System V/MLS Release 1.2.0 American Telephone and Telegraph Company NTIS #: TBD NCSC Final Report #: CSC-EPL-90/003	B1	William J. Leighton II (201) 386-3000
OS 1100/2200 Release SB3R6 Unisys Corporation NTIS #: TBD NCSC Final Report #: TBD	B1	James L. Murtaugh (612) 635-7777
SVS/OS CAP 1.01 Wang Laboratories, Inc. NTIS #: TBD NCSC Final Report #: TBD	C2	Gaetano T. Gangemi (508) 459-5000

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EPL ENTRIES

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PRODUCT BULLETIN ENTRIES

PRODUCT EVALUATION BULLETIN

REPORT NO.	CSC-PB-88/003
AS OF:	14 Sept. 1988
PRODUCT:	**Boeing MLS LAN**
VENDOR:	Boeing Aerospace
CANDIDATE CLASS:	**A1 MI Network Component**

PRODUCT DESCRIPTION:

Boeing Aerospace's Multi-Level Secure Local Area Network (MLS LAN) is a network component providing multilevel secure communications between attached devices. These devices include, for this evaluation, terminals, host computers, serial devices, video devices, and stream devices. Within limits, a site is free to choose how many of each type of device to attach.

The NCSC considers that the Boeing MLS LAN is a candidate for A1 MI network component and is capable (when properly supported by a special Network Management node and attached devices) of supporting a network system with Mandatory Access Control, Discretionary Access Control, Identifivcation and Authentication, and Auditing commensurate with the A1 requirements.

The MLS LAN consists of a set of one or more nodes called Secure Network Servers (SNSs). Each SNS may support physical interfaces for terminals, host computers, serial devices, video devices, or stream devices. A group of SNSs may be connected to one another by a transmission medium (either fiber optic or coaxial cable), enabling devices on separate SNSs to communicate. The SNS provides the following services:

1) host-to-host communication

2) terminal-to-host communication

3) terminal-to-terminal communication

4) terminal/host-to-serial-device communication

5) video and stream circuit-switched communication

Host-to-host communication is supported by TELNET, Transmission Control Protocol (TCP), and User Datagram Protocol (UDP) service. Terminals may communicate with hosts and serial devices through TELNET and with other terminals through an Inter-Terminal Message

service. Serial devices are supported with TELNET service. Video and stream circuit-switching is controlled through the terminal interface. All of these communications services are governed by a mandatory security policy. The MLS LAN maintains sensitivity labels for devices and data that include both secrecy and integrity components at the granularity of 8 hierarchical levels and 256 non-hierarchical categories. In addition, the MLS LAN requires all network terminal users to identify and authenticate before allowing them to use any netwotk resources. End-to-end user identity and network addresses are provided to hosts.

PRODUCT STATUS:

The MLS LAN is developed and supported by Boeing Aerospace, a division of The Boeing Company.

SECURITY EVALUATION STATUS:

A formal evaluation of the MLS LAN will commence in October 1988 and is scheduled for completion in 1991. At the completion of the formal evaluation, the National Computer Security Centerv will produce a final evaluation report, and place the MLS LAN on the Evaluated Products List. The MLS LAN will be evaluated against Appendix A of the *Trusted Network Interpretation of the Trusted Computer System Evaluation Criteria*, as a candidate A1-MI network component. It can potentially be incorporated into a network system that can meet the TNI part 1 requirements for class A1.

A Product Bulletin does not assign any rating to a product. It merely establishes the candidate class which is the highest class the system could attain should formal evaluation be completed. As with all evaluations, a system must complete the formal evaluation phase before being assigned any rating.

PRODUCT EVALUATION BULLETIN

REPORT NO.	CSC-PB-90/003
AS OF:	13 June 1990
PRODUCT:	**XTS-200 [1]/STOP**
VENDOR:	Honeywell Federal Systems Inc. (HFSI)
CANDIDATE CLASS:	**B3**

PRODUCT DESCRIPTION:

The XTS-200 is a superminicomputer, based on the Bull HN Information Systems Inc. DPS 6 PLUS and DPS 6000. STOP is a multi-level secure operating system that runs on the XTS-200 hardware. The XTS-200 is a multiprocessing system capable of supporting up to four independent processors. It provides a two gigabyte virtual memory, and uses a hardware ring mechanism for protection. STOP is a multi-tasking system which can support multiple users. It supports much of the UNIX System V interface for application software.

STOP consists of four components: the Security Kernel, which operates in the most privileged ring and provides all mandatory access control, as well as discretionary access control for devices and processes; the TCB System Services, which operates in the next-most-privileged ring, and implements a hierarchical file system, supports user I/O, and implements the discretionary access control for file system objects; Trusted Processes, which provide the remaining security services and the user command interface to the TCB; and Commodity Application Services System (CASS), which operates in a less privileged ring and provides the UNIX-like interface. CASS is not a part of the Trusted Computing Base.

PRODUCT STATUS:

XTS-200 uses the DPS 6 PLUS and DPS 6000 hardware, with firmware modifications developed by HFSI. STOP was developed by HFSI. XTS-200/STOP and is marketed and supported by HFSI. STOP Version 3.1 was released in September 1989.

EVALUATION STATUS:

A formal evaluation of XTS-200/STOP began in July 1990 and is scheduled for completion during the third quarter of 1991. XTS-200/STOP will be evaluated against the *DoD Trusted Computer System Evaluation Criteria*, DoD 5200.28-STD, December 1985.

The National Computer Security Center considers XTS-200/STOP a candidate for the class of products which provide security domains (i.e., class B3). At the completion of the evaluation, a final evaluation report will be produced by the National Computer Security Center and XTS-200/STOP will be placed on the Evaluated Products List with its assigned rating.

[1]XTS-200 is a registered trademark of Honeywell Federal Systems Inc.

A Product Bulletin does not assign any rating to a product. It merely establishes the candidate class which is the highest class the system could attain should the formal evaluation be completed. As with all evaluations, a system must complete the formal evaluation phase before being assigned any rating.

ENVIRONMENTAL STRENGTHS:

XTS-200/STOP is designed to provide a high level of security for many kinds of environments, including office automation applications and those with specialized applications (such as message guards). The processor enforces a ring mechanism similar to that found in the Honeywell Multics system, that isolates the security mechanisms, and a virtual memory system based on segments. The system also supports a hierarchical file system similar to that of UNIX. Access control is provided by user-specified controls (i.e., discretionary access controls) through access control lists, with additional controls provided to properly separate sensitive information from unauthorized users (i.e., mandatory access controls). It provides for user identification and authentication through user IDs and passwords, and individual accountability through its auditing capability.

PRODUCT EVALUATION BULLETIN

REPORT NO.	CSC-PB-91/001
AS OF:	15 March 1991
PRODUCT:	**Unix System V Release 4.1 Enhanced Security**
VENDOR:	AT&T Unix System Laboratory Inc.
CANDIDATE CLASS:	**B2**

PRODUCT DESCRIPTION:

AT&T UNIX System Laboratories' UNIX System V Release 4.1 Enhanced Security, (hereafter referred to as SVR4.1ES) is a multi-level secure version of UNIX System V for the AT&T 3B2/1000 Model 60 minicomputer. This multi-user, multi-tasking operating system, based on UNIX System V Release 4.0, maintains System V application compatibility, provides BSD and Xenix compatibility, is compatible with the System V Application Binary Interface (ABI) and the System V Interface Definition (SVID), passes the System V Verification Suite (SVVS). Applications are source and binary code compatible with existing programs, provided those programs do not require modifications to the SVR4.1ES Trusted Computing Base (TCB) or violate the system security policy. Additionally, SVR4.1ES conforms to the XPG3, IEEE-P1003.1, FIPS151-1, and ANSI C standards.

In addition to using the traditional protection mechanism of the UNIX operating system to provide discretionary access control, SVR4.1ES also provides extended discretionary access controls through the use of access control lists (ACLs) which provide users a mechanism to provide different types of access for each user or group with allowed access. In addition to this discretionary access mechanism, SVR4.1ES provides mandatory access controls to limit the distribution of information to only those users who have been authorized for it. The mandatory security policy is consistent with the Bell-LaPadula model and conforms with DoD policy. SVR4.1ES provides a flexible labeling scheme that supports up to 246 site selectable hierarchical classification levels and 992 nonhierarchical categories.

The administrator has the capability to restrict users and login ports to selectable classification ranges. A multi-level mail capability allows users to communicate with each other at classifications defined by the administrator. SVR4.1ES enforces a security policy that prevents both the unauthorized declassification of information and unauthorized modification of trusted code.

SVR4.1ES provides considerable assurance that the system security features work as specified. Significant effort has been applied to the UNIX System V to create a structured, modular, secure system. Commands have been added to provide security features, and all commands execute with the minimum privilege.

SVR4.1ES also provides some features and assurances beyond those required for a class B2 system. These include the use of ACLs to enforce discretionary access controls and a covert channel analysis which provides a thorough search for all covert channels. All of the security features and assurances designed into SVR4.1ES will be evaluated by the Trusted Product and Network Security Evaluation Team.

PRODUCT STATUS:

SVR4.1ES is developed, marketed and supported by UNIX System Laboratories Incorporated. The supporting 3B2/1000 Model 60 hardware is developed and manufactured by the American Telegraph and Telephone Corporation. SVR4.1ES is an enhancement to UNIX System V Release 4.0, which is currently marketed. The evaluated SVR4.1ES is projected to be available in December 1992.

SECURITY EVALUATION STATUS:

A formal evaluation of SVR4.1ES will begin in March 1991 and is scheduled for completion in December 1992. SVR4.1ES will be evaluated against the Department of Defense Trusted Computer System Evaluation Criteria, DOD 5200.28-STD, December 1985.

The Trusted Product and Network Security Division of the National Security Agency considers SVR4.1ES a candidate for the class of products which provide labeled security protection (i.e., class B2). At the completion of the evaluation, a final evaluation report will be produced by the Trusted Product and Network Security Division and SVR4.1ES will be placed on the Evaluated Products List (EPL).

A Product Bulletin does not assign any rating to a product. It establishes the candidate class which is the highest class the system could attain should the formal evaluation be completed. As with all evaluations, a system must complete the formal evaluation phase before being assigned any rating.

ENVIRONMENTAL STRENGTHS:

SVR4.1ES provides isolation of the operating system through its use of the 3B2/1000 hardware protection mechanisms. The hardware supports the two states of the operating system, which are kernel and user level. Kernel level is a privileged level of operation whereby the operating system can protect itself from user intervention. A specific user interface is provided into the kernel, so that operating system services are available to user-level application programs. All memory access is at the kernel level and mandatory as well as discretionary access controls are in force.

Process isolation is guaranteed by the use of per-process virtual address space, memory structures unique to a process and the concept of an active process which has access to controlled kernel resources.

SVR4.1ES provides an auditing facility to ensure user accountability. All security-relevant events are auditable. This facility includes collection, reduction, backup, and data recovery capabilities.

Identification and authentication is accomplished by the trusted login facilities. This mechanism provides for user identification and authentication, and the specification of classification level and categories which determine access to the system itself as well as to application resources. Information about the users (user profiles) is stored in a protected database in SVR4.1ES.

The system also enforces the principle of least privilege for each of the defined privileged user roles (i.e., users should have no more authorization than what is required to perform their functions). The privileged users are assigned to one of the following roles: System Administrator and Trusted System Programmer. Additionally, separate roles can be supported for individuals who require a limited trusted role. This separation is achieved by strictly limiting role activity to predefined operations. In addition, all security-relevant actions performed by privileged users will be audited.

PRODUCT EVALUATION BULLETIN

REPORT NO.	CSC-PB-91/002
AS OF:	12 Feruary 1991
PRODUCT:	**OS/32 and OS/32 MTM**
VENDOR:	Concurrent Computer Corp.
CANDIDATE CLASS:	**C2**

PRODUCT DESCRIPTION:

OS/32 is Concurrent's microsecond responsive real-time operating system that runs on all of its single and multiprocessing Series 3200 systems and 8/32 systems. OS/32 Multi-Terminal Monitor (OS/32 MTM) is Concurrent's timesharing and program development environment that runs on OS/32. Together they provide a trusted development and real-time environment for small scale dedicated systems to large scale multiprocessing systems. These products will be evaluated on Concurrent's 3280SP, 3280MPS, 3280EMPS, and all members of Concurrent's Micro3200 family.

PRODUCT STATUS:

OS/32 and OS/32 MTM are developed, marketed and supported by Concurrent Computer Corporation.

SECURITY EVALUATION STATUS:

A formal evaluation of OS/32 and OS/32 MTM commenced in March 1991 and is scheduled for completion by the end of the third calendar quarter of 1991. OS/32 and OS/32 MTM are being evaluated against the DoD Trusted Computer Systems Evaluation Criteria, DoD 5200.28-STD, dated December, 1985.

The National Computer Security Center considers OS/32 and OS/32 MTM a candidate for the class of products which provide controlled access protection (i.e., C2). Upon completion of the evaluation, a final evaluation report will be produced by the National Computer Security Center in which OS/32 and OS/32 MTM will be place on the Evaluated Products List (EPL).

A Product Bulletin does not assign any rating to a product. It establishes the candidate class which is the highest class the system could attain should the formal evaluation be completed. As with all evaluations, a system must complete the formal evaluation phase before being assigned any rating.

ENVIRONMENTAL STRENGTHS:

OS/32 and OS/32 MTM provide discretionary access control to its file system via read and write privileges to user accounts, thereby maintaining control over the dissemination and integrity of individual's files. In addition, Concurrent's restricted disks capability limits access to selected disks to users only with appropriate access privileges. The system administrator can go one step further by "cloaking" certain devices from selected users, thereby preventing the user from accessing or even knowing that a given device is available.

OS/32 and OS/32 MTM also provide user identification and authentication through user account numbers and passwords. Tailorable site-specific security measures or system administration procedures can be executed during logon and logoff by command files established by the system/security administrator. Individual accountability is obtained through its ability to audit each user's security relevant events.

Compliance with the object reuse requirement is accomplished by overwriting physical memory before it is allocated to another user. Disk blocks are overwritten upon deletion of a file or optionally overwritten when a file is allocated.

3b

OPERATING SYSTEM EPL ENTRIES

	Serial No. CSC-EPL-85/001
EVALUATED PRODUCT:	Secure Communications Processor (SCOMP)
VENDOR:	HONEYWELL Information Systems, Inc.
VERSIONS:	STOP Release 2.1
DATE:	24 December 1984
OVERALL EVALUATION CLASS:	A1

PRODUCT DESCRIPTION:

The SCOMP hardware consists of a standard HONEYWELL Level 6/DPS 6 16 bit minicomputer with a modified CPU, to which a Security Protection Module (SPM) has been added. The SPM provides segmentation, paging, protection rings similar to the HONEYWELL Level 68 Multics, with argument validation, and virtual address translation. The virtual environment includes virtual I/O as well as virtual memory.

The primary software security mechanism of the SCOMP system is the security kernel, based on the Center-approved Bell-LaPadula model of the software portion of the reference monitor implementation. As such, it controls access to objects in accordance with its embedded security policy. The security kernel supports both mandatory and discretionary controls, and provides a strong foundaticon on which to build secure applications programs.

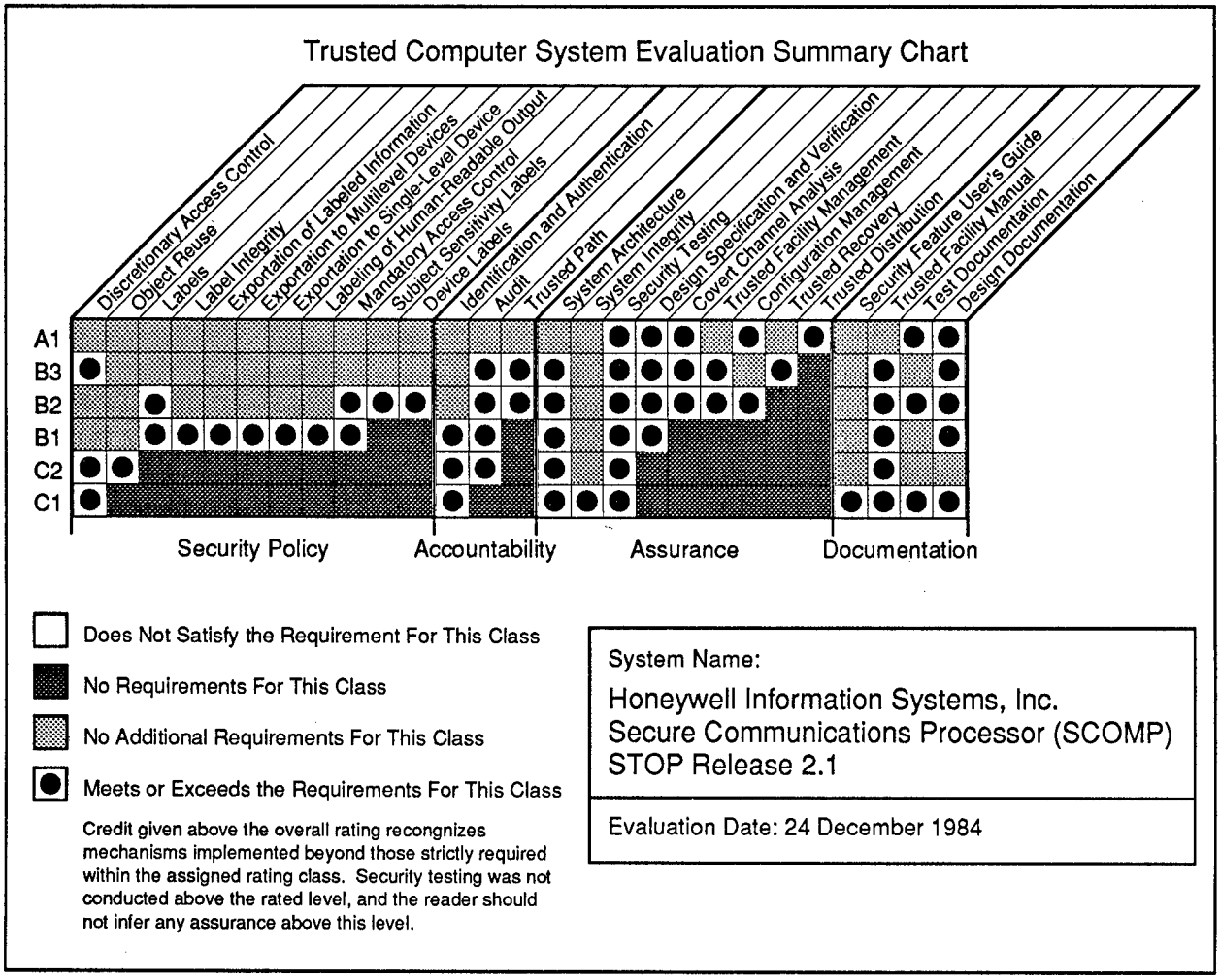
The Trusted Software (a set of security-relevant, non-kernel code) provides a basic terminal-oriented operating system interface that runs on, and derives its security from, the security kernel and the SCOMP system architecture. Trusted user services provide the interface to the SCOMP system for the user, trusted operations services provide the system operator with the capabilities necessary to run the system, and trusted maintenance services allow the system administrator to build and maintain the SCOMP system.

SCOMP software is supported by Honeywell Federal Systems Division in McLean, VA, and the hardware is supported by Honeywell Custom and Special Products Operation in Billerica, MA.

EVALUATION SUMMARY:

The security protection provided by the Security Communications Processor (SCOMP) running STOP release 2.1 has been evaluated by the Department of Defense Computer Security Center (DoDCSC) against the requirements specified by the *DoD Trusted Computer System Evaluation Criteria* (the Criteria), dated 15 August 1983.

The DoDCSC has determined that the SCOMP satisfies all the requirements of the Criteria at class A1. In particular, the system was deemed to be especially strong in areas such as trusted software verification, mandatory access control, trusted path, and system architecture.



The SCOMP system is composed of special purpose hardware, (SPM), a software security kernel, and trusted software. This rating applies to the STOP Release 2.1 software (kernel and trusted) and its special purpose hardware (hardware base marketing identifier CPU9101).

For a complete description of how SCOMP satisfies each requirement of the Criteria, *see Final Evaluation Report, Secure Communications Processor (SCOMP), STOP Release 2.1* (Report No. CSC-EPL-85/001).

Serial No. CSC-EPL-85/003

EVALUATED PRODUCT: Multics

VENDOR: Honeywell Information Systems (HIS)

VERSIONS: MR11.0

DATE: 1 September 1985

OVERALL EVALUATION CLASS: B2

PRODUCT DESCRIPTION:

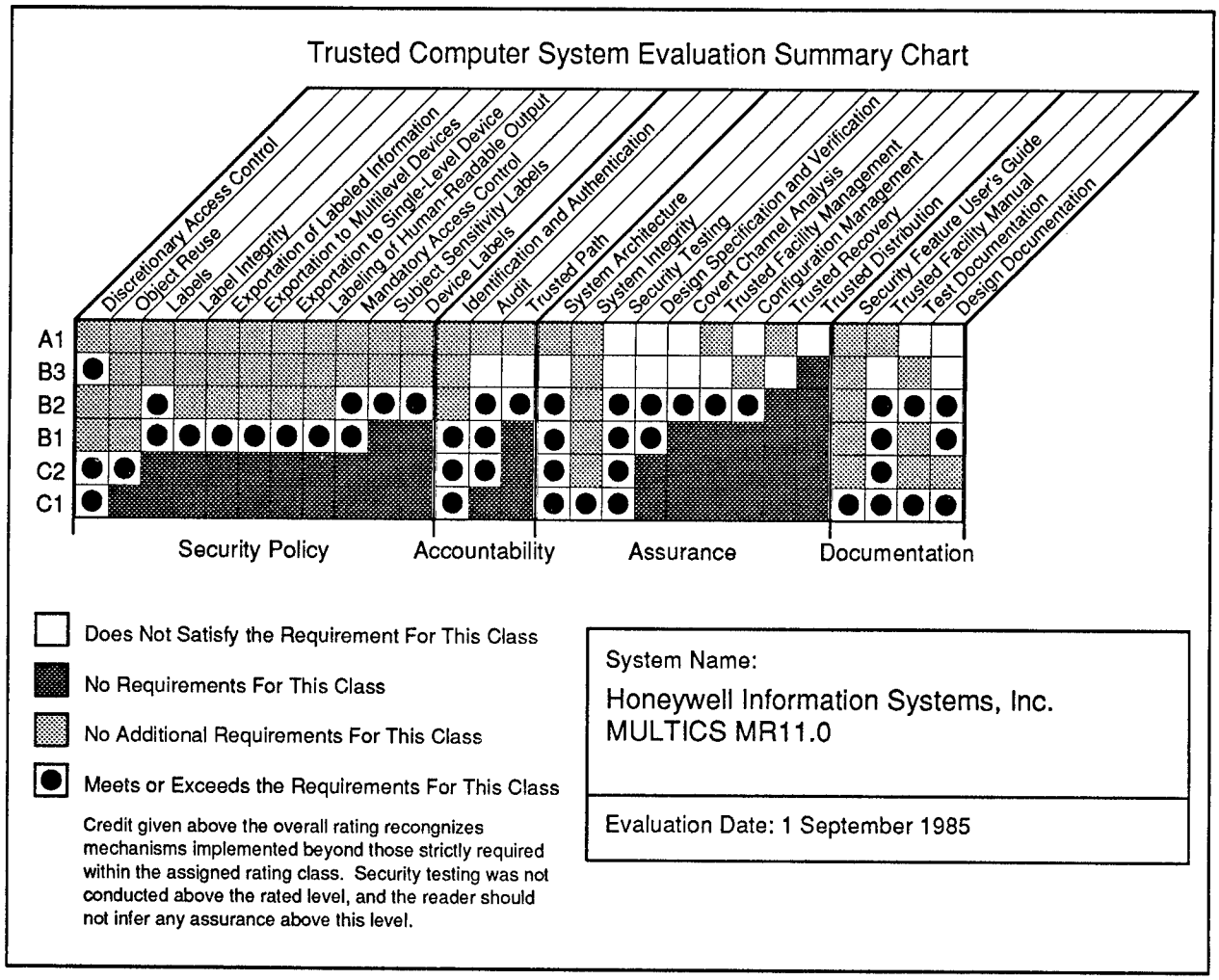
The Honeywell Multics system consists of the Multics operating system running on Honeywell Level 68 and DPS-8M mainframes. These systems include Multics-specific hardware to support the Multics system architecture and protection mechanisms. A large Multics system may be configured with several processors and can support several hundred users. Multics can be used in a wide variety of environments.

The Multics operating system is a general-purpose time-sharing system with strong security features. Multics has three basic security mechanisms. The hardware-supported protection rings and segmentation provide tightly controlled separate domains of execution. The Access Isolation Mechanism (AIM) software provides mandatory access control. The Access Control Lists (ACLs) provide discretionary access control.

EVALUATION SUMMARY:

The security protection provided by Multics MR11.0 has been evaluated by the National Computer Security Center (NCSC). The security features of Multics were tested against the requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria* (the Criteria), date 15 August 1983.

The NCSC evaluation team has determined that the highest class at which Multics MR11.0 satisfies all the specified requirements of the Criteria is class B2.



The rating given to the evaluated system (viz., B2) is the highest level of the Criteria at which the system satisfies all the specified requirements. For a complete description of how Multics MR11.0 satisfies each requirement of the Criteria, see *Final Evaluation Report, Honeywell Information Systems Multics MR11.0* (Report No. CSC-EPL-85/003).

Serial No. CSC-EPL-86/003

EVALUATED PRODUCT: Network Operating System (NOS)

VENDOR: Control Data Corporation (CDC)

VERSIONS: NOS Security Evaluation Package

DATE: 28 May 1986

OVERALL EVALUATION CLASS: C2

PRODUCT DESCRIPTION:

The CDC NOS Security Evaluation Package consists of NOS version 2.4.1, TMS4, and the audit reduction tool running in secured mode on the CDC Cyber 170/800 series or Cyber 180/800 series machines. The evaluated system configuration includes only the following subsystems:

Network Access Method (NAM)
Batch I/O (BIO)
Interactive Access Facility (IAF)
Magnet (MAG)
Remote Batch Facility (RBF)
Tape Management System (TMS)

NOS is a large general-purpose time-sharing system capable of supporting several hundreds of users. NOS can be used in a wide variety of applications. The system's protection mechanisms provide a fine-grained discretionary access control over all files on the system.

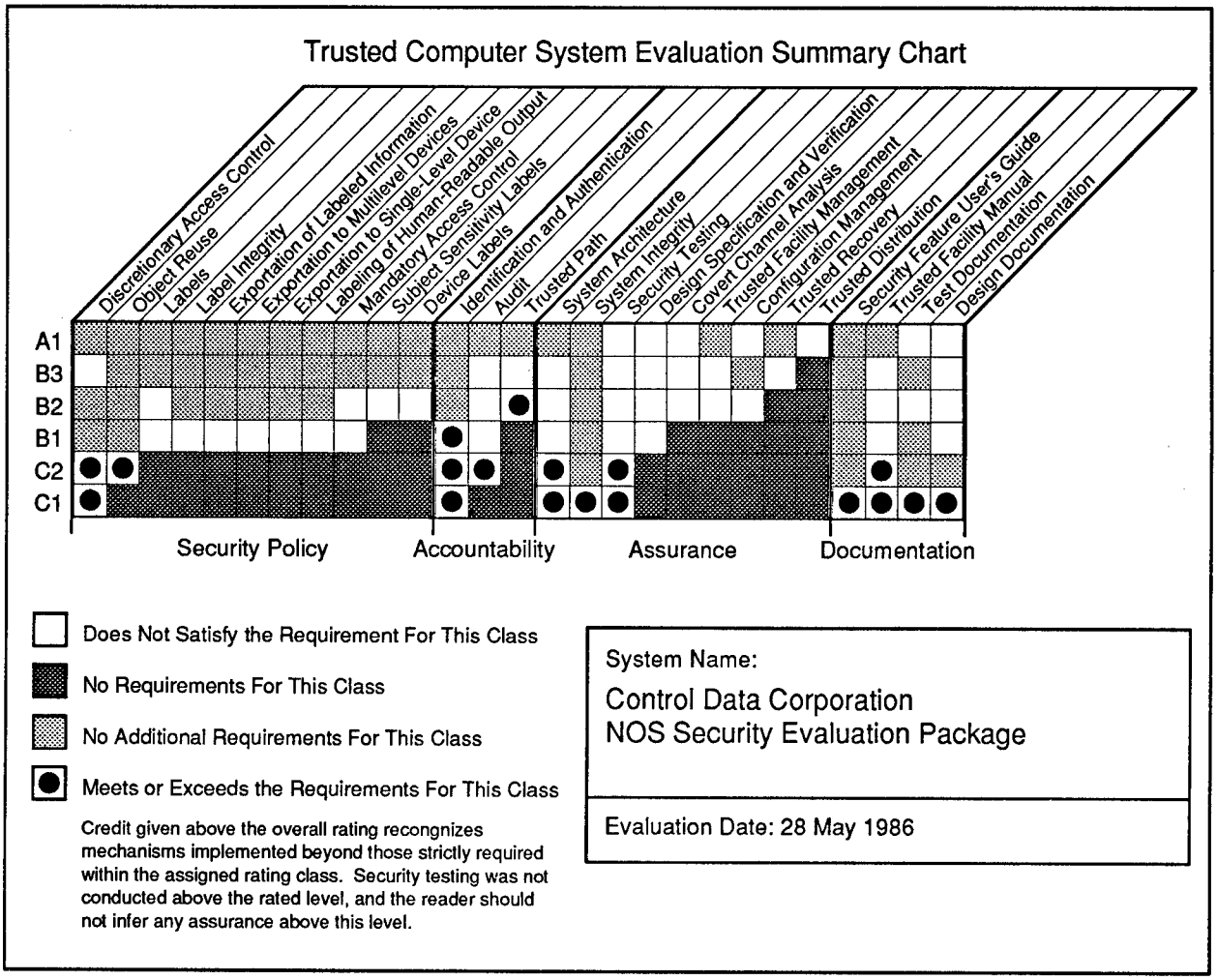
EVALUATION SUMMARY:

The security protection provided by NOS Security Evaluation Package has been evaluated by the National Computer Security Center (NCSC). The security features of NOS were tested against the requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria* (the Criteria), dated 15 August 1983.

The NCSC evaluation team has determined that the highest class at which the NOS security package satisfies all specified requirements of the Criteria is class C2.

Additionally, NOS provides some mandatory access controls that, while not sufficient to satisfy the Criteria's B1 mandatory access control and labeling requirements, do provide some of the mechanisms needed when handling classified or non-classified but sensitive information. A class B1 rating is achievable, but would require several changes to the existing mechanisms.

The NCSC team has also noted some additional strengths of NOS above what is required for a class C2 system. These include well-developed and maintained testing procedures and resource controls that are effective against denial of service attacks through resource exhaustion.



The figure above indicates the requirements and corresponding level that the NOS Security Evaluation Package satisfies.

The rating given to the evaluated system (viz., C2) is the highest level of the criteria at which the system satisfies all the specified requirements. For a complete description of how the NOS Security Evaluation Package satisfies each requirement of the Criteria, see *Final Evaluation Report, Control Data Corporation NOS Security Evaluation Package* (Report No. CSC-EPL-86/003).

	Serial No. **CSC-EPL-86/007**
EVALUATED PRODUCT:	UTX/32S
VENDOR:	Gould, Inc., Computer Systems Division
VERSIONS:	Release 1.0
DATE:	31 December 1986
OVERALL EVALUATION CLASS:	C2

PRODUCT DESCRIPTION:

The UTX/32S system consists of the UTX/32S operating system running on a Gould PowerNode 6000 or 9000 series minicomputer. The UTX/32S operating system is based on Berkely 4.2 BSD and AT&T System V. UTX/32S is a general-purpose, time-sharing system capable of supporting up to 128 users. UTX/32S preserves the strengths of the UNIX operating system and eliminates many of the security weaknesses, while maintaining almost complete command and system library compatibility.

UTX/32S implements an additional integrity mechanism, called the Restricted Environment, to provide isolation between privileged (trusted) and unprivileged domains. Unprivileged users operate in the restricted environment. This restricted environment, which is a subtree of the file system, is a virtual UNIX system containing all common untrusted programs and files. TCB files and privileged programs are kept outside this environment and thus are protected from modification by untrusted users. Trusted servers perform the sensitive services, including system mail, printing, and device allocation. Only system administrators may access the trusted domain.

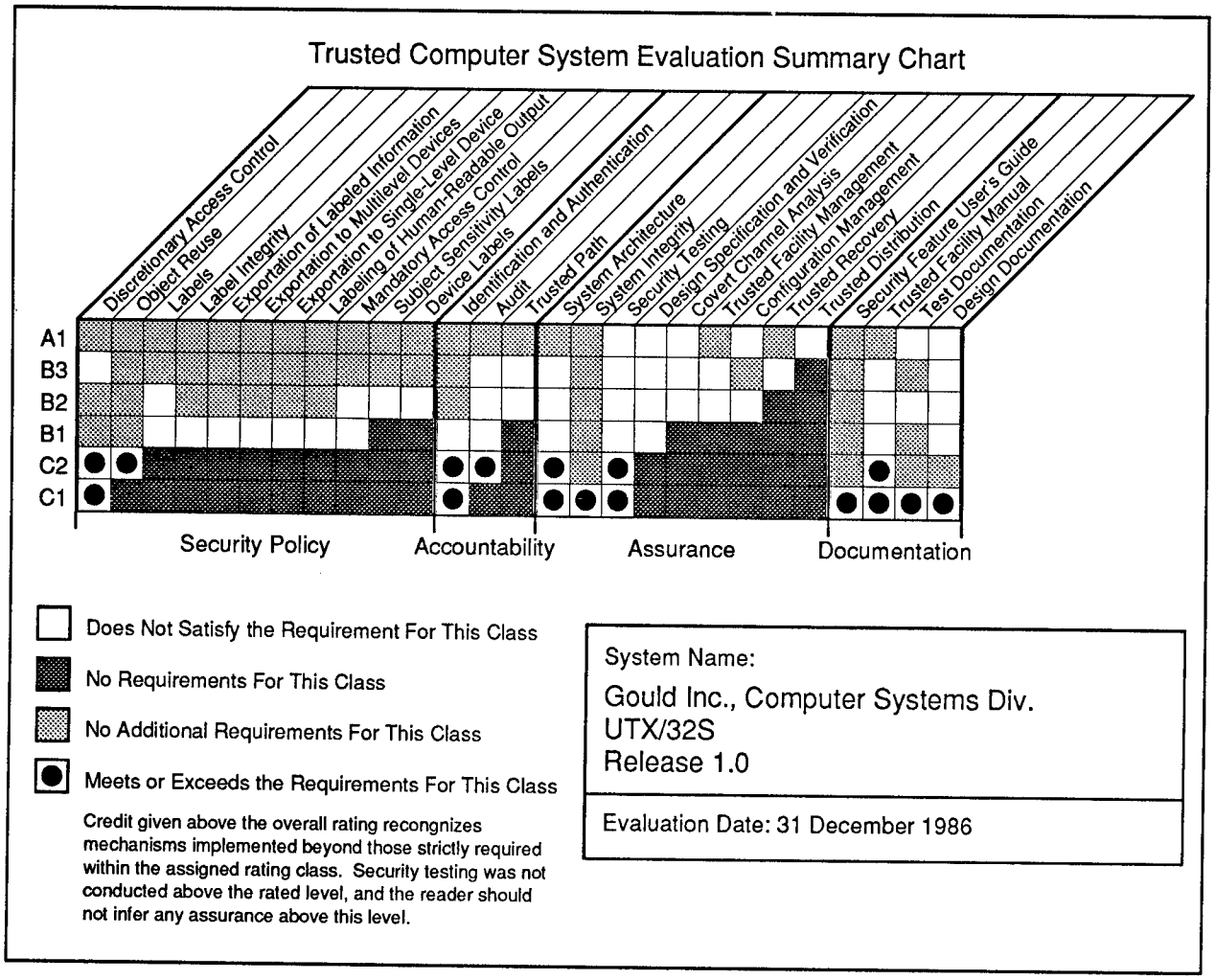
To further enhance security, UTX/32S eliminates some of the weaknesses inherent in UNIX, including the "setuid" feature on files. Discretionary access control is provided by the standard UNIX protection-bit mechanism. In addition, UTX/32S provides a stronger I/O device control protection mechanism.

EVALUATION SUMMARY:

The security protection provided by UTX/32S has been evaluated by the National Computer Security Center (NCSC). The security features of UTX/32S were tested against the requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria* (the Criteria), dated December 1985.

The NCSC evaluation team has determined that the highest class at which UTX/32S satisfies all the specified requirements of the Criteria is class C2.

The NCSC team has also noted some additional strengths of UTX/32S above what is required for a class C2 system. These include well-developed and maintained testing and configuration management procedures.



The figure above indicates the requirements and corresponding level that UTX/32S satisfies.

The rating given to the evaluated system (viz., C2) is the highest level of the criteria at which the system satisfies all the specified requirements. For a complete description of how UTX/32S satisfies each requirement of the Criteria, see *Final Evaluation Report, Gould, Inc., Computer Systems Division, UTX/32S, Release 1.0* (Report No. CSC-EPL-86/007)

Serial No. CSC-EPL-87/003

EVALUATED PRODUCT: A Series MCP/AS with InfoGuard Security Enhancements

VENDOR: UNISYS Corporation

VERSIONS: Release 3.7

DATE: 5 August 1987

OVERALL EVALUATION CLASS: C2

PRODUCT DESCRIPTION:

A Series is the current family of fully compatible computers produced by UNISYS Corporation. Members of the product line range in size from several-user minicomputers to mainframes supporting hundreds of users. The product line currently includes 21 models of processors that offer more than a 270-fold performance range. The A Series system architecture is based on a high-order language, specifically ALGOL. The A Series system supports reentrant/recursive multiprocessing, multiprogramming and virtual memory through its tagged memory and stack architecture.

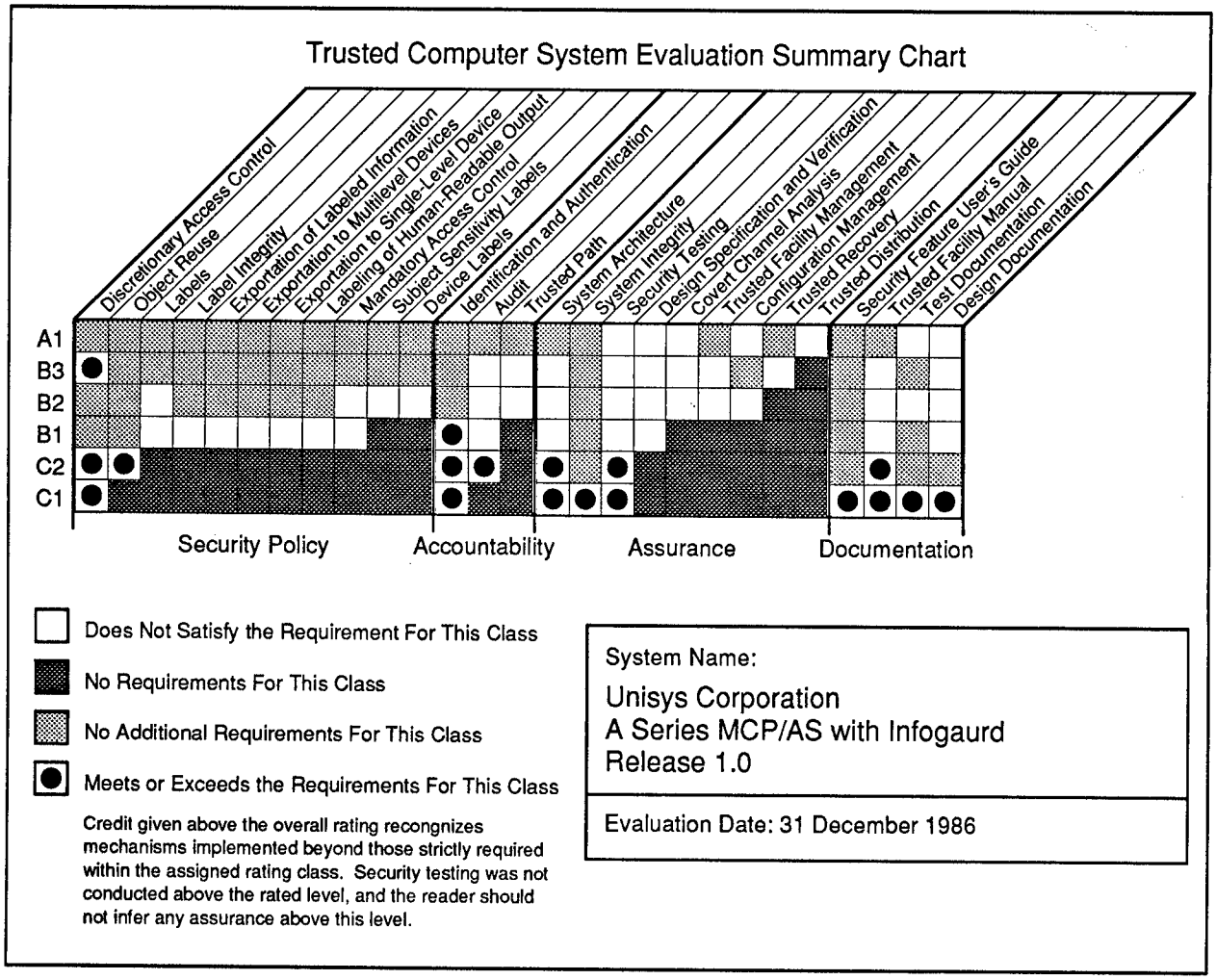
Software for A Series includes the Master Control Program/Advanced System (MCP/AS), InfoGuard security enhancements, a broad range of high-order language compilers, COMS (data communication interface and transaction processing controller), CANDE (user/programmer timesharing interface), DMSIT (data management), and a full complement of utilities. The A Series Trusted Computing Base (TCB) is composed of MCP/AS, InfoGuard security enhancements, the compilers, COMS, CANDE and many system utilities. TCB software provides privilege and protection mechanisms to mediate and monitor access to system and user resources.

All processors in the A Series product line provide a single state for execution. Therefore, the A Series system software is responsible for providing a self-protecting domain for the A Series TCB. Although in many systems, isolation of the TCB from user processes is provided by running the TCB in a completely separate (and privileged) hardware protection state, this is not true of A Series. Instead, a combination of capability-like hardware mechanisms and TCB software (including the compilers) is used to provide the necessary isolation. Because programs compiled by unprivileged users have no direct access to the machine instruction set or to the hardware enforcement mechanisms, the A Series TCB is able to isolate itself and other user processes from any attempted security violations. These capability-like hardware mechanisms are the tag architecture, the base and limit of stack registers, and the display registers.

EVALUATION SUMMARY:

The security protection provided by the A Series Release 3.7 has been evaluated by the National Computer Security Center (NCSC) against the requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria* (the Criteria), dated December 1985.

The NCSC evaluation team has determined that the highest class at which the A Series Release 3.7 satisfies all the specified requirements of the Criteria is class C2.



The figure above indicates the requirements and corresponding level that the A Series Release 3.7 with InfoGuard security enhancements satisfies.

The rating given to the evaluated system (viz., C2) is the highest level of the Criteria at which the system satisfies all the specified requirements. For a complete description of how the A Series satisfies each requirement of the Criteria, see *Final Evaluation Report, UNISYS Corporation A Series MCP/AS* (Report No. CSC-EPL-87/003).

Serial No. CSC-EPL-87/007

EVALUATED PRODUCT:	acf2/VM with IBM's VM/SP or VM/SP HPO, VM Batch Subsystem, and Directory Maintenance Program Product
VENDOR:	Computer Associates International (formerly Uccel Corporation, formerly SKK, Inc.)
VERSIONS:	Release 3.1 of acf2/VM; release 4.0 VM/SP, Program Update Tape (PUT) 8704 OR release 4.2 VM/SP HPO, PUT 8704; release 1, modification 5 of VM Batch Subsystem; release 2.0, Directory Maintenance Program Product
DATE:	11 September 1987
OVERALL EVALUATION CLASS:	C2

PRODUCT DESCRIPTION:

acf2/VM is an add-on security subsystem designed for IBM's VM operating system running on any IBM 370-type processor. It is designed to provide both user-specified and default protection for system access, minidisks, tape volumes, attachable DASD devices, CP commands and DIAGNOSE instructions, and interprocess communications, including IUCV and VMCF. In addition, system administrators' abilities may be restricted by use of the acf2/VM SCOPE facility. Both the acf2/VM product and underlying VM operating system are being included in the evaluation.

acf2/VM is designed to provide a phased approach to implementation. Under QUIET mode, acf2/VM allows data access validation to be disabled, but checks logon validation. Under LOG mode, acf2/VM allows accesses but journals accesses that would have been denied if it were in ABORT mode. Under WARN mode, acf2/VM issues warning messages in addition to journaling accesses that would have been denied. Under ABORT mode, the normal operating mode, acf2/VM journals and denies all unauthorized accesses. Under RULE mode, any of the previously mentioned modes can be implemented to a finer granularity, so that critical data can be protected first. Only the ABORT mode and the RULE mode with ABORT defaults of acf2/VM have been evaluated for the C2 rating.

Because of the importance of extended security in the large mainframe computer installation, acf2/VM has a wide range of interface capabilities. acf2/VM can be interfaced with other independently supplied software products which do not affect the trusted computing base, such as IBM's Remote Spooling Communications Subsystem (RSCS) and File Storage Facility (FSF). Interfaces tested during the evaluation are the VM Batch Subsystem and Directory Maintenance Program Product (DIRMAINT).

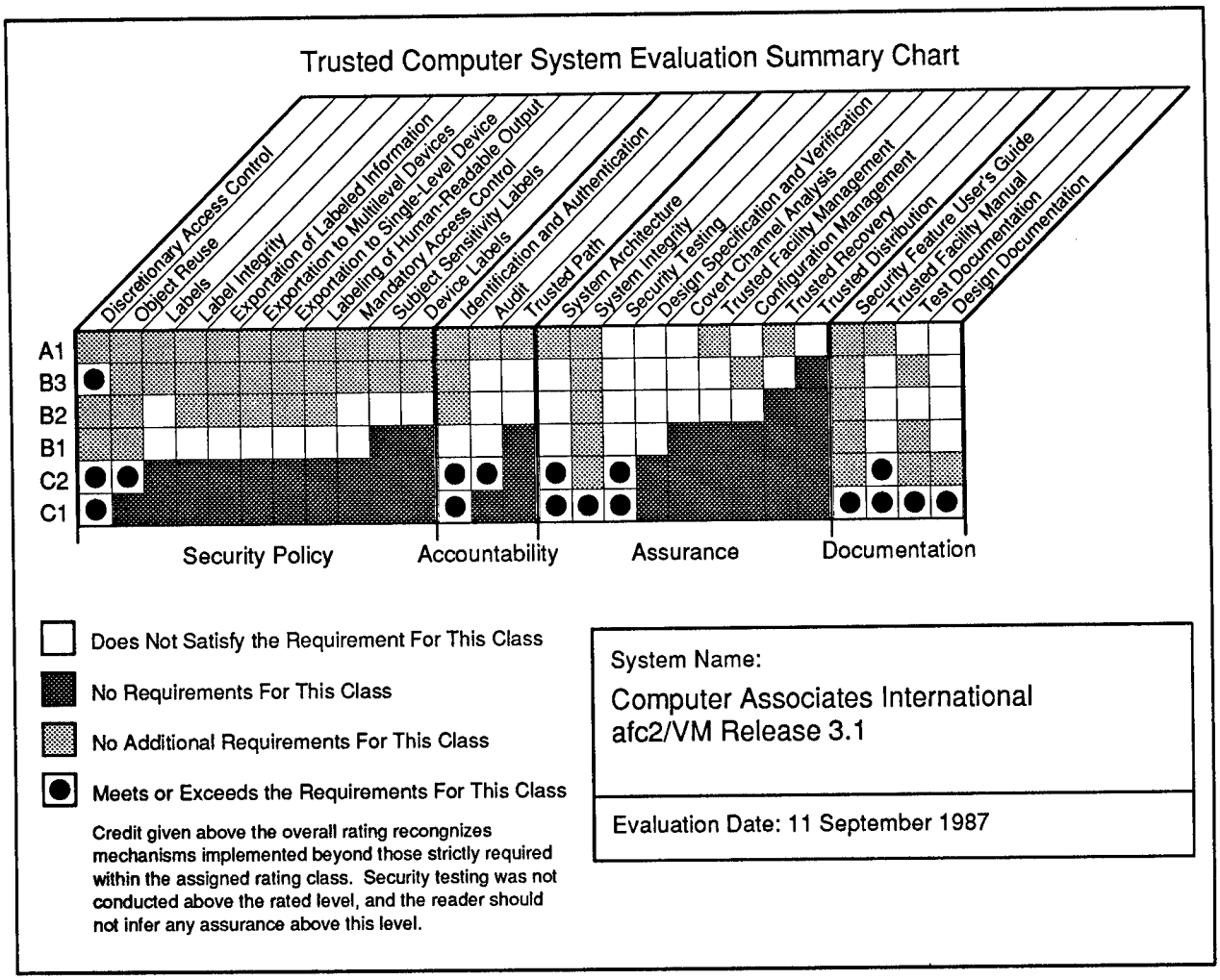
EVALUATION SUMMARY:

The security protection provided by Computer Associates' Access Control Facility 2/Virtual Machine (acf2/VM) add-on package release 3.1 running with IBM's Virtual Machine/System Product (VM/SP) Release 4.0 or IBM's Virtual Machine/System Product High Performance Option (VM/SP HPO) Release 4.2 operating system has been examined by the National Computer Security Center (NCSC). The security features of acf2/VM were examined against the requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria* (the Criteria), dated December 1985.

The NCSC evaluation team has determined that the highest class at which acf2/VM could satisfy all the specified requirements of the Criteria is class C2. acf2/VM, using the specified hardware and software, configured and operated in the most secure configuration as described in the Trusted Facility Manual, has been assigned a class C2 rating. Note that this evaluation does not include the operating systems on the individual user virtual machines or objects protected by those operating systems.

The NCSC team has also noted that acf2/VM provides some features and assurances beyond those required for a class C2 system. These include configuration management procedures, and a finer granularity of control for discretionary access control.

The figure on the next page indicates the requirements and corresponding level that acf2/VM satisfies.



A system that has been rated as being a C2 system provides a Trusted Computing Base (TCB) that enforces a finely grained discretionary access control mechanism and ensures that individual users are accountable for their actions through login and auditing procedures. For a complete description of how acf2/VM satisfies each requirement of the Criteria, see *Final Evaluation Report, Computer Associates International acf2/VM* (Report No. CSC-EPL-87/007).

Serial No. **CSC-EPL-88/003**

EVALUATED PRODUCT:

Multiple Virtual Storage/System Product (MVS/SP)
Job Entry Subsystem 2 (JES2)
Data Facility Product (DFP)
Resource Access Control Facility (RACF)
Time Sharing Option / Extensions (TSO/E)
Advanced Communications Function / Virtual Telecommunications Access Method (ACF/VTAM)
System 370 Extended Architecture (370-XA)
(collectively referred to as MVS/XA with RACF)

VENDOR:

International Business Machines Corporation

VERSION EVALUATED:

MVS/SP JES2 Version 2 Release 2
MVS/XA DFP Version 2 Release 3
RACF Version 1 Release 8
TSO/E Version 1 Release 4 for XA
ACF/VTAM Version 3 Release 1.1 for XA

DATE:

15 June 1988

OVERALL EVALUATION CLASS: C2

PRODUCT DESCRIPTION:

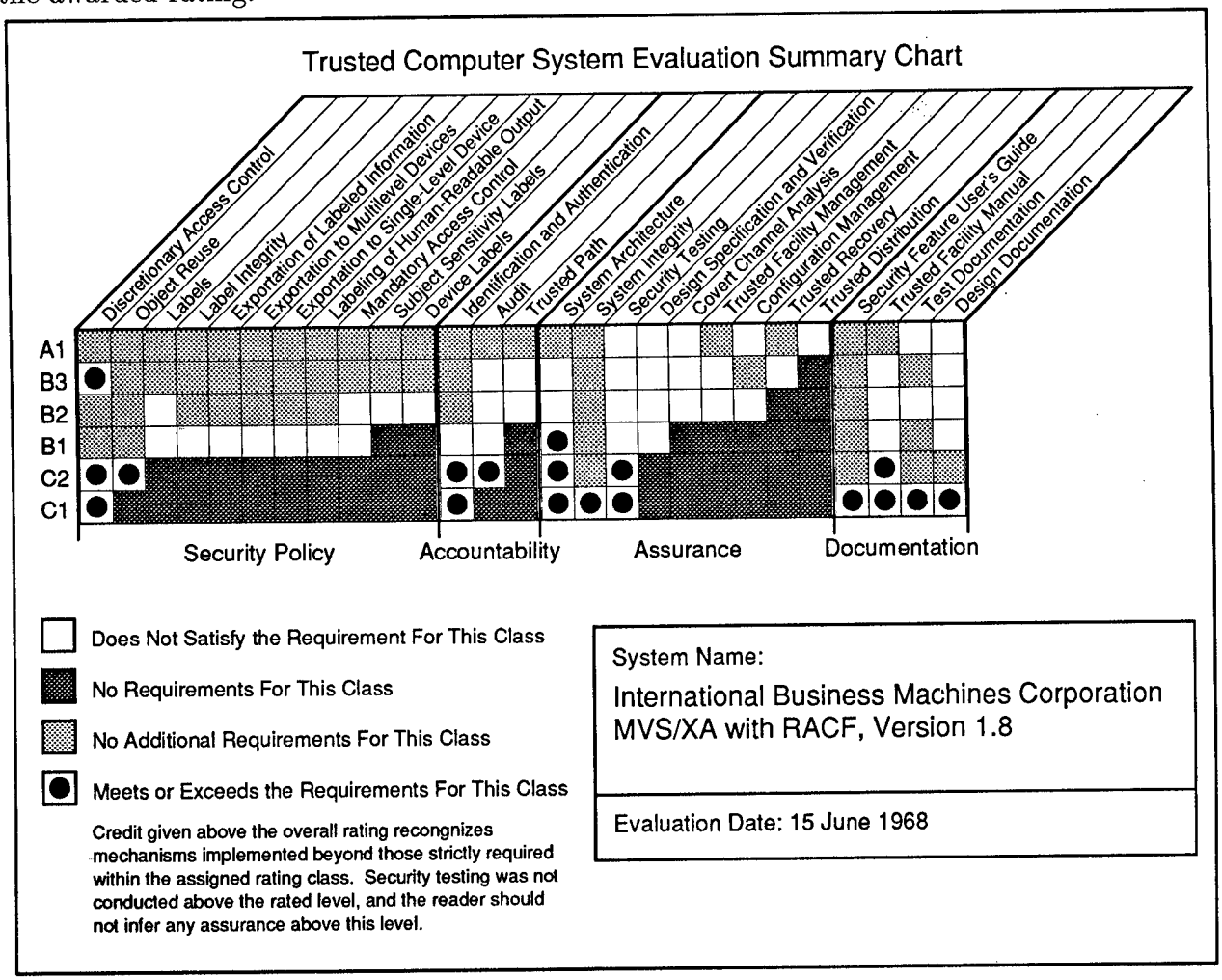
MVS/XA is IBM's operating system for its computers that offer the System 370 Extended Architecture (370-XA). The system provides generalized facilities that support a wide variety of usages including concurrent execution of multi-user time-sharing, batch, and real-time applications.

RACF is IBM's strategic facility for providing security services and support to MVS/XA. RACF provides numerous functions and features that greatly enhance an installation's control over its resources. RACF's flexibility and functionality supply a common base for security within many IBM products. MVS/XA with RACF make available privilege and protection mechanisms to limit user access to system-controlled structures in physical storage, system-structured volumes and files, and certain devices.

The evaluated software encompasses all other products listed above supplying MVS/XA with a wide functionality. Furthermore, several MVS/XA systems may be operated together within an MVS/XA JES2 complex while retaining the overall rating.

The 370-XA architecture specifies several protection mechanisms. In general, user programs execute in the problem state while the system programs in the supervisor state. User separation is achieved with an extensive memory and address space management. System programs are further isolated by means of protection keys.

The evaluated software is supported by IBM processors supporting 370-XA. This product line ranges from mid-range 4381 computers to 3090 mainframes with six central processors and six vector facilities. In addition, four models of the 3090 computers may be operated in certain partitioned configurations while maintaining the security of each system and, hence, the awarded rating.



EVALUATION SUMMARY:

The security protection provided by MVS/XA with RACF has been evaluated by the National Computer Security Center (NCSC) against the requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria* [DOD 5200.28-STD] dated December 1985.

The NCSC evaluation team has determined that the highest class at which MVS/XA with RACF satisfies all the specified requirements of the Criteria is class C2.

The figure on the previous page indicates the requirements and corresponding level that MVS/XA with RACF satisfies.

The rating given to the evaluated system (viz., C2) is the highest level of the Criteria at which the system satisfies all the specified requirements. For a complete description of how MVS/XA with RACF satisfies each requirement of the Criteria, see *Final Evaluation Report, International Business Machines Corporation MVS/XA with RACF* (Report No. CSC-EPL-88/003). In addition, the Report should also be consulted for the complete lists of evaluated hardware and software components as well as all the necessary PUT levels, PTF numbers, and APAR numbers.

	Serial No. CSC-EPL-88/009
EVALUATED PRODUCT:	Primos
VENDOR:	Prime Computer, Inc.
VERSION:	Primos Revision 21.0.1DODC2A
DATE:	24 June 1988
OVERALL EVALUATION CLASS:	C2

PRODUCT DESCRIPTION:

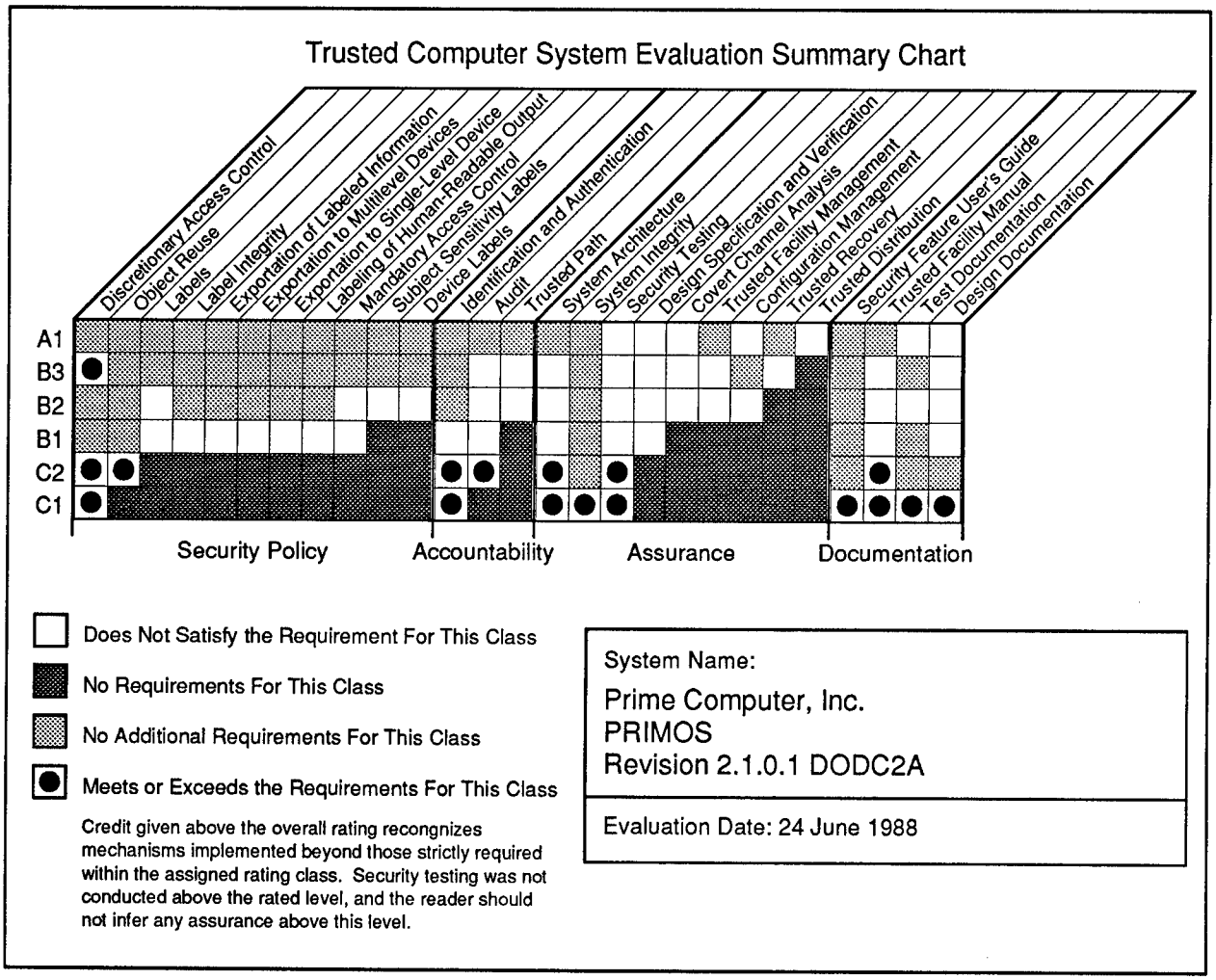
The C2 Primos, revision 21.0.1DODC2A, is identified as product number 850300 and can be acquired directly from Prime Computer Corporation. This product includes the Primos operating system and the auditing facility.

Primos is a general purpose, multiprocessing operating system running on Prime's 50 series hardware. The 50 series hardware is a completely upward and downward compatible line of processors offering advanced architectural features such as virtual memory, process exchange, dynamic linking, and hardware memory protection. Primos is structured to take advantage of these architectural features. For example, it supports multiple concurrent processes each running in its own private virtual address space, controlled procedure sharing, and dynamic linking.

Support software for Primos includes an auditing facility, a broad range of high-order language compilers, editors, data base products, CAD/CAM products, and other system support utilities. The auditing facility is made up of four components: an audit collection facility, an audit reporting facility, an audit file backup facility, and a crash audit recovery facility.

EVALUATION SUMMARY:

Prime's Primos operating system revision 21.0.1DODC2A has been evaluated by the National Computer Security Center (NCSC) against the requirements specified in the *Department of Defense Trusted Computer System Evaluation Criteria*, DOD 5200.28-STD. The NCSC has determined that Primos 21.0.1DODC2A satisfies all of the requirements of the Criteria class C2.



For a complete description of how Primos satisfies each Criteria requirement, see *Final Evaluation Report, Prime Computer Corporation, Primos revision 21.0.1DODC2A* (Report No. CSC-EPL-88/009).

Serial No. CSC-EPL-88/010

EVALUATED PRODUCT: MPE V/E, Release G.03.04

VENDOR: Hewlett Packard Computer Systems Divison

DATE: 5 October 1988

OVERALL EVALUATION CLASS: C2

PRODUCT DESCRIPTION:

The MultiProgramming Executive (MPE) operating system is a disc-based software system that supervises all processing and maintains all user interfaces with various versions of the HP 3000 computer system. MPE provides a single operating environment across a broad compatible family of systems, provides superior response in I/O-intensive transaction processing environments, and is easy to use.

MPE is designed so that user capabilities, the account structure, and system security measures are intertwined. Additional structures provided by MPE include groups, which are collections of files, and accounts, which are collections of users and groups. Passwords are assigned for users, and can also be assigned for groups and accounts, but the system can be operated securely without the use of group and account passwords. Once logged onto a system, users are restricted in what they can do via capability sets, which can be defined at the user, group, and account level. These capability sets may restrict users from such activities as saving files or logging on interactively.

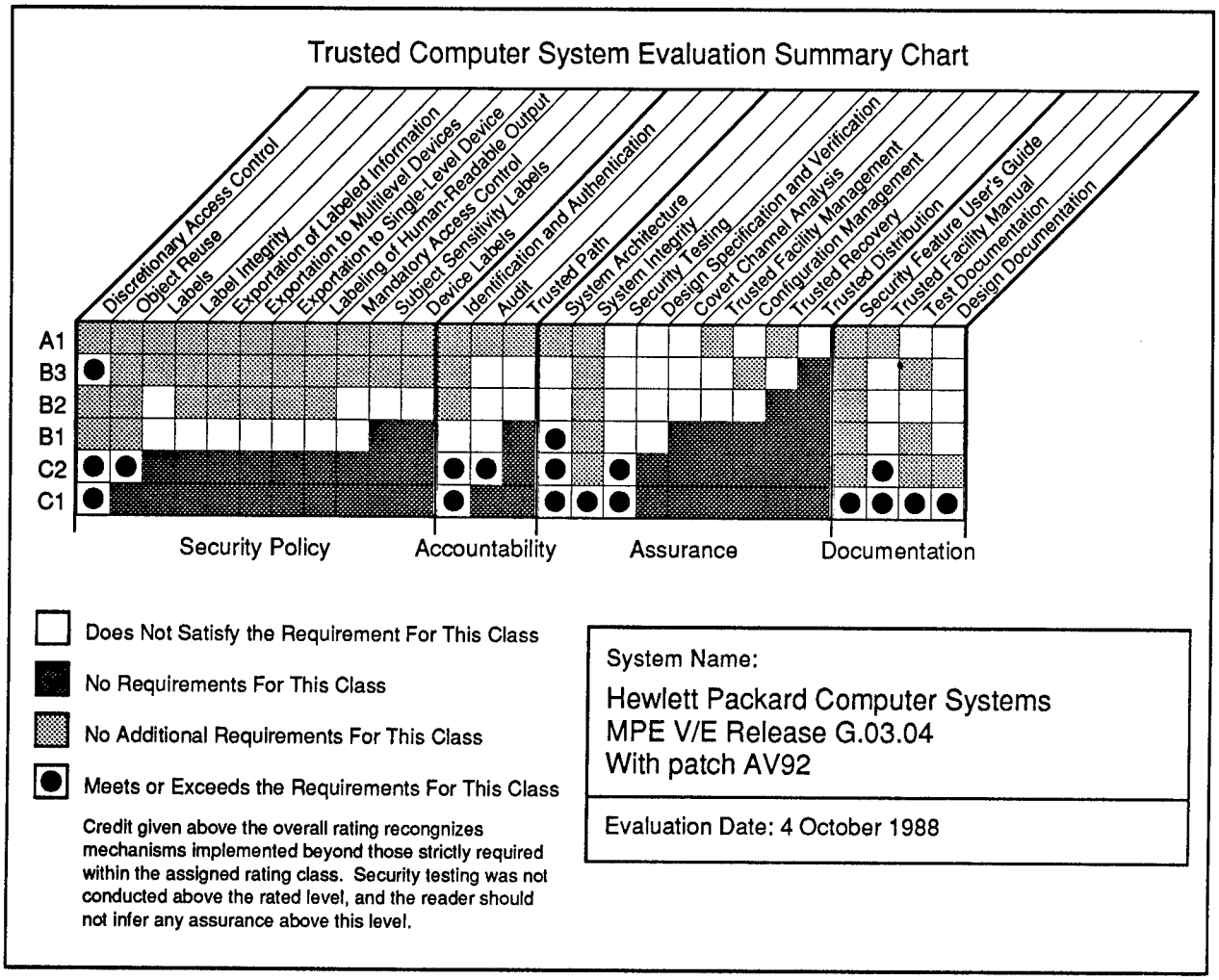
File protection is provided by Access Control Definitions (ACDs). Access Control Definitions provide discretionary access control to individual objects (files and devices) in terms of users and modes of access.

MPE provides a system logging facility that can track selected system events, such as job and session initiation and termination, ACD changes, and process creation. The capability to audit the actions of one or more users based on individual identity is provided. An audit reduction tool is provided for generating reports from the system log.

HP Security Monitor is a fully integrated system security program that allows system administrators to protect both system resources and sensitive data from unauthorized access. Building on the strong security of the MPE operating system, it allows improved password protection via encryption, password aging, and length requirements, stronger audit trails via increased logging options, and tighter access security as a result of limiting log-on attempts, requiring terminal passwords and terminating idle sessions. It also provides batch security features. All features are optional and individually enabled.

EVALUATION SUMMARY:

The security protection provided by MPE V/E, Release G.03.04 has been evaluated by the National Computer Security Center (NCSC). The security features of MPE V/E were tested against the requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria*, dated 26 December 1985. The evaluated hardware set includes the following system processing units: MICRO 3000, MICRO 3000XE, Series 42, Series 42XP/52, Series 48, Series 58, or Series 6x/70.



The NCSC evaluation team has determined that the highest class at which MPE V/E Release G.03.04 satisfies all specified requirements of the Criteria is class C2, Controlled Access Protection. In addition, MPE V/E satisfies the class B1 requirements for System Architecture, and the class B3 requirements for Discretionary Access Control. For a complete description of how MPE V/E satisfies each requirement of the Criteria, see *Final Evaluation Report, Hewlett Packard Computer Systems Division, MPE V/E* (Report No. CSC-EPL-88/010).

Serial No. CSC-EPL-89/001

EVALUATED PRODUCT: AOS/VS revision 7.60 running on a MV/ECLIPSE series processors.

VENDOR: Data General Corporation

VERSIONS: AOS/VS revision 7.60 The evaluated MV/ECLIPSE series processors include: MV/4000, MV/6000, MV/7800 (including model DC, U, C, DCX, or XP), MV/8000 (including model II or C), MV/10000 (including model SX), MV/15000 (including model8, 10, or 20), and the MV/20000.

DATE: 6 December 1988

OVERALL EVALUATION CLASS: C2

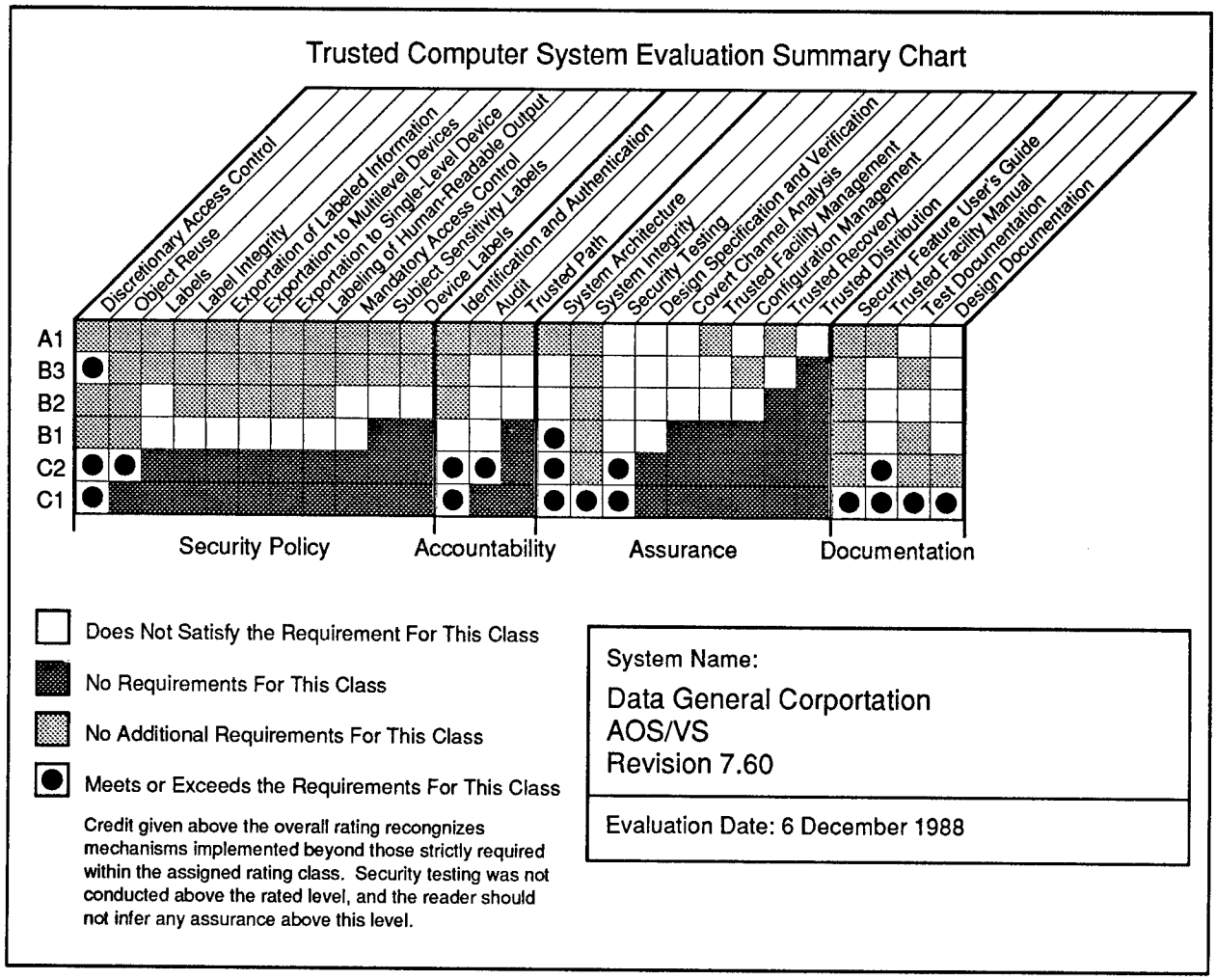
PRODUCT DESCRIPTION:

Data General Corporation's AOS/VS operating system revision 7.60 for the MV/ECLIPSE 32-bit virtual memory-mini computers is a general purpose operating system which provides both batch and on-line processing in a multi-process, multi-tasking environment. AOS/VS runs on the entire line of Data General's MV/ECLIPSE systems, ranging from the MV/2000 to the MV/20000. The MV/20000 supports AOS/VS dual processor instructions.

Programs and data are contained in an addressable unit of variable length memory named a segment. Segments are safeguarded by a collection of protection mechanisms named rings. Eight concentric rings provide security for the segments from the AOS/VS operating system kernel (ring 0, most privileged) to the top segment of user space (ring 7, least privileged). The MV/ECLIPSE architecture through its ring design provides a firmware implemented gate at every ring boundary which automatically checks ring crossing calls for proper authorizations.

User authentication is done through username and password verification and an optional password encryption mechanism is provided. AOS/VS also provides an extensive system audit trail capability. AOS/VS maintains an access control list for each directory and data file. It includes the users who can and cannot access files as well as the privileges which allow the accesses. This type of access control mechanism provides discretionary access control of code and data in the system.

The audit trail captures security relevant events such as file accesses, failed log-on attempts, and process creations and terminations to monitor attempted breaches of system security. AOS/VS ensures that objects allocated to a process do not contain residual data left from previous process. Object reuse applies only to those objects with a storage capability including: physical pages, physical disk blocks, and dynamic storage allocation.



EVALUATION SUMMARY:

The security protection provided by Data General Corporations' AOS/VS computing system has been examined by the National Computer Security Center (NCSC). The Security features were examined against the requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria* (the Criteria), dated December 1985.

The NCSC evaluation team has determined that the highest class at which the evaluated computing system could satisfy all the specified requirements of the Criteria is class C2. The AOS/VS revision 7.60 operating system using the specified hardware and software, configured and operated in the secure configuration as described in the Trusted Facility Manual, has been assigned a class C2 rating.

The NCSC team has also noted that the computing system provides some features and assurances beyond those required for a class C2 system. These include a B1 evaluated system architecture, and B3 evaluated discretionary access control.

The figure on the previous page indicates the requirements and corresponding level that the evaluated AOS/VS computing system satisfies.

A system that has been rated as being a C2 system provides a Trusted computing Base (TCB) that enforces a discretionary access control mechanism that ensures that individual users are accountable for their actions through login and auditing procedures. For a complete description of how the evaluated AOS/VS computing system satisfies each requirement of the Criteria, see *Final Evaluation Report, Data General Corporation AOS/VS* (Report No. CSC-EPL-89/001).

Serial No. **CSC-EPL-89/003**

EVALUATED PRODUCT: System V/MLS version 1.1.2 running with UNIX System V Release 3.1.1 on the AT&T 3B2/500 or AT&T 3B2/600 minicomputers.

VENDOR: American Telephone and Telegraph Co. (AT&T)

EVALUATION DATE: 7 September 1989

OVERALL EVALUATION CLASS: B1

PRODUCT DESCRIPTION:

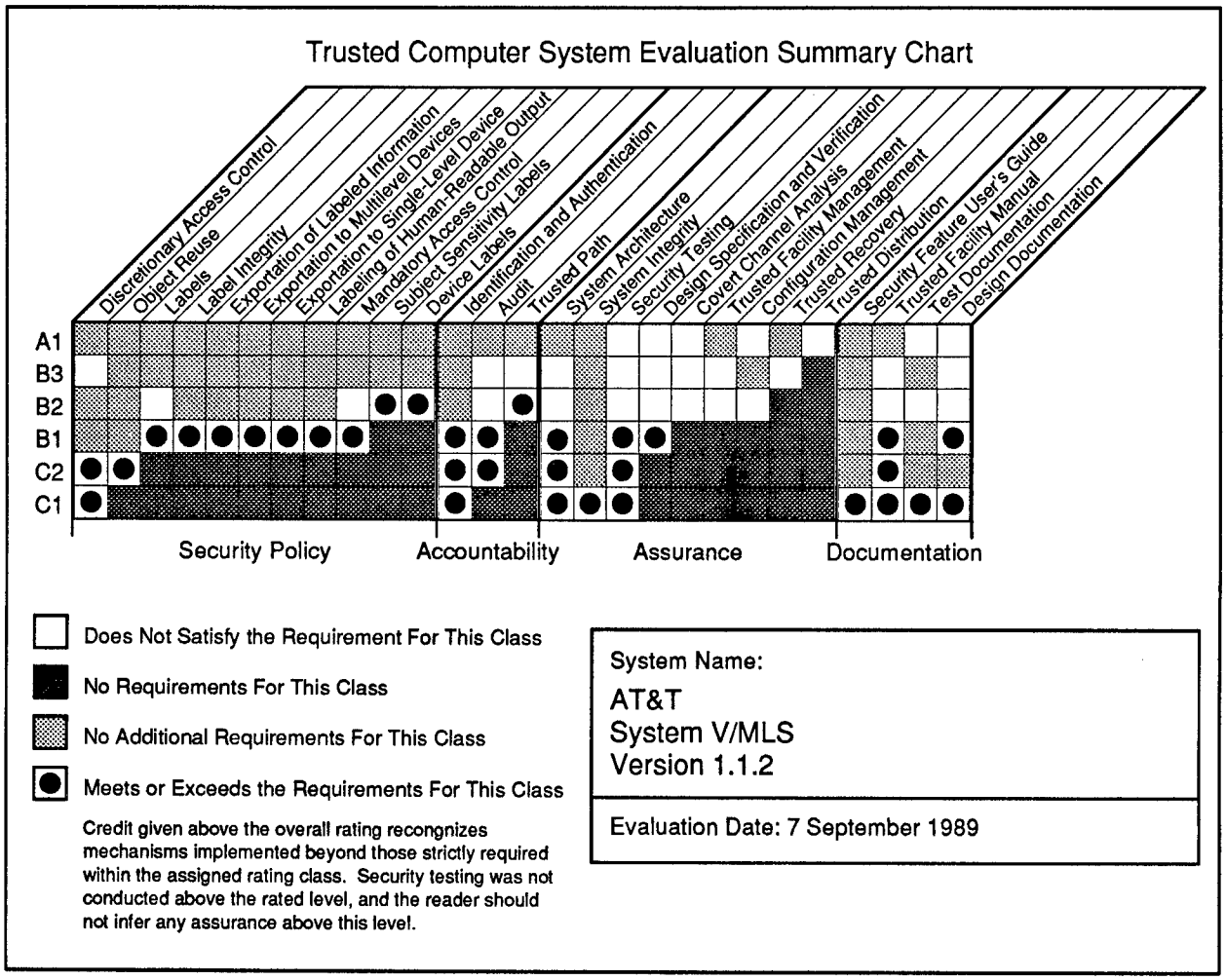
AT&T's System V/MLS Release 1.1.2 running with UNIX System V Release 3.1.1 (hereafter referred to as System V/MLS) is a multi-level secure version of UNIX [1] System V for the AT&T 3B2/500 and AT&T 3B2/600 minicomputers. System V/MLS is a multi-user, multi-tasking operating system that can support up to 48 concurrent users on a 3B2/500 and up to 64 concurrent users on a 3B2/600. System V/MLS maintains System V application compatibility, is compatible with the System V Interface Definition (SVID), passes the System V Verification Suite (SVVS), and is source and binary code compatible with existing programs, provided those programs do not require modifications to the System/V MLS Trusted Computing Base (TCB) or violate the system security policy.

In addition to using the traditional protection mechanism of the UNIX operating system to provide discretionary access control, System V/MLS also provides mandatory access control to limit the distribution of information to only those users who have been authorized for it. The mandatory security policy is consistent with the Bell-La Padula model and conforms with DoD policy. System V/MLS provides a flexible labeling scheme that supports up to 255 site selectable hierarchical classification levels and 1024 nonhierarchical categories.

The administrator has the capability to restrict users and login ports to selectable classification ranges. A multi-level mail capability allows users to communicate with each other at classifications defined by the administrator. System V/MLS enforces a security policy that prevents both the unauthorized declassification of information and unauthorized modification of trusted code. The mandatory access controls are implemented in a manner analogous to the traditional UNIX commands for discretionary access control. Other commands have been added to allow users to create discretionary groups on the system. Users can change levels without having to logout. A random password generator implements the algorithms recommended in the *DoD Password Management Guideline*, CSC-STD-002-85.

[1] UNIX is a registered trademark of AT&T

Audit trail records are generated for security-relevant events and can be analyzed by an administrator using an audit trail formatter. A trusted path is provided at login time to ensure that users are communicating with the TCB.



The 630 Multi-Tasking Graphics intelligent terminal (630 MTG), a high-resolution, multi-window graphics terminal, can be used with System V/MLS to provide the user with seven windows, each of which can contain information at a different security label. A "cut and paste" capability allows the user to simultaneously edit files at different security levels within the constraints of the enforced security policy.

System V/MLS also provides some features beyond those required for a class B1 system. These include B2 trusted path, B2 subject sensitivity labels, and B2 device labeling. This product has also entered the NCSC Rating Maintenance Phase (RAMP).

EVALUATION SUMMARY:

The security protection provided by System V/MLS has been evaluated by the National Computer Security Center (NCSC) against the requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria* [DOD 5200.28-STD] (the Criteria) dated December 1985.

The NCSC evaluation team has determined that the highest class at which System V/MLS satisfies all the specified requirements of the Criteria is class B1.

The Trusted Computer System Evaluation Summary Chart indicates the requirements and corresponding level that System V/MLS satisfies. For a complete description of how System V/MLS saticfies each requirement of the criteria, see *Final Evaluation Report, AT&T System V/MLS* (report No. CSC-EPL-89/003)

Serial No. CSC-EPL-89/004

EVALUATED PRODUCT: Unisys OS 1100 Security Release I

VENDOR: Unisys Corporation

EVALUATION DATE: 27 September 1989

OVERALL EVALUATION CLASS: B1

PRODUCT DESCRIPTION:

OS 1100 Security Release I is a general purpose, multiprocessing operating system running on Unisys 1100/90, System11, and 2200/200 hardware. These models share a common architecture which employs a multi-state protection mechanism along with hardware memory protection. OS 1100 is structured to take advantage of these architectural features. For example, it supports multiple processes (activities), each running with a private virtual address space and capable of sharing protected subsystems (common memory banks).

OS 1100 Security Release I supports batch, time-sharing (demand), and transaction processing (TIP) modes. The trusted computing base (TCB) of OS 1100 Security Release I consists of specific releases of the following components: Executive, CMS1100, TELCON, COMUS, FAS, IRU, UDS, MCB, PERCON, SIMAN, SSP, TLABEL, and DPREP1100. Communications are provided by Distributed Communications Processors (DCP) and Integrated Communication Processors (ICP) operating as front end processors under control to CMS 1100 and TELCON. The OS 1100 Executive is the base component and a prerequisite for the other components. The TCB enforces a mandatory and discretionary security policy, performs user identification and authentication, clears residue, generates audit trail and accounting records, and provides a base upon which to build secure application programs.

OS 1100 Security Release I provides isolation of the OS 1100 Executive through the use of hardware protection mechanisms. Access to OS 1100 subsystems (shared memory banks) is protected with controlled access to entry points (gates). If access is permitted to the entry point, the system switches the security attributes of the process (activity) to those specified for the subsystem. Activity isolation is achieved by using a hardware and software architecture which includes a per-activity virtual address space, per-activity stacks, and architecturally defined activity state changes.

OS 1100 Security Release I provides a mandatory access control policy consistent with the Bell-LaPadula model. Mandatory access control is based on labeling which supports up to 64 hierarchical levels and 30 categories. An administrator can attach symbolic names to each level and each category. Additionally, each category may be securely re-defined by an administrator. OS 1100 requires that all subjects and objects have a mandatory label and ensures that all accesses to objects conform to the security policy.

Discretionary access control provided by OS 1100 Security Release I is based on access lists which may be private (default), public, or semi-private (access control record attached). Access control records specify by whom, when, and how the object may be accessed. OS 1100 not only provides discretionary access controls available for individual users. Access may be controlled at a group level as well.

OS 1100 Security Release I provides clearing of residue (object reuse) in registers, main storage, and mass storage.

Identification and authentication of batch, demand, and TIP users is accomplished by presenting a userid and password to the TCB's login facility. Identification and authentication information is stored in a protected database in the OS 1100 file system.

OS 1100 Security Release I provides an auditing facility to ensure user accountability. All security-relevant events are always audited, not just auditable. This facility includes collection, reduction, backup, and audit data recovery capabilities. The Log Analyzer (LA) provides audit reduction capabilities including security reports, actions of individual users, and references to specific objects or object security levels.

OS 1100 also provides the ability to restrict user privileges to those required to perform their duties. All users (including operators and administrators) are subject to this mechanism. The system supports a Security Administrator role. This administrator is responsible for the overall security of the system. Sub- administrators can also be defined to the system. System operators and administrators are trusted individuals and their interactions with the system are audited.

OS 1100 Security Release I also provides some features beyond those required for a class B1 system. These include B2 trusted path, B3 DAC for groups, and B2 trusted facility management.

EVALUATION SUMMARY:

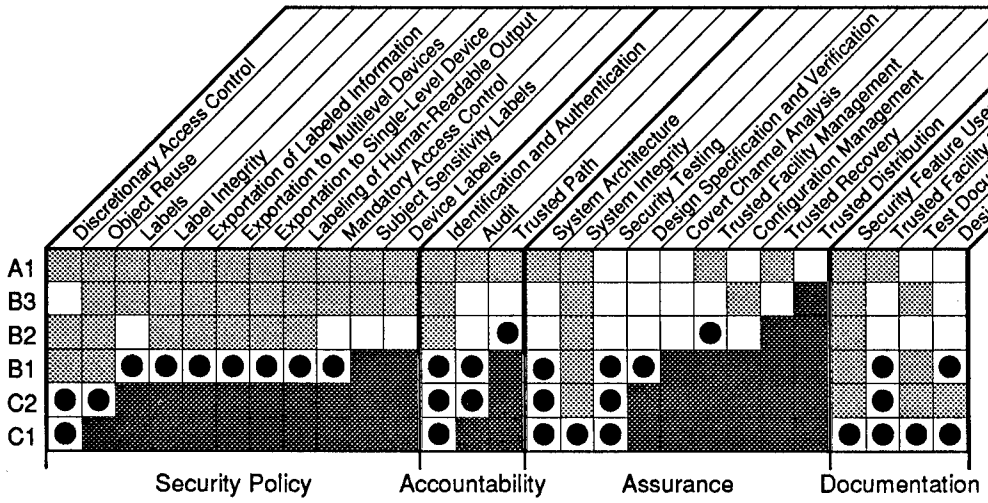
The security protection provided by OS 1100 Security Release I has been evaluated by the National Computer Security Center (NCSC) against the requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria* [DOD 5200.28-STD] (the Criteria) dated December 1985.

The NCSC evaluation team has determined that the highest class at which OS 1100 Security Release I satisfies all the specified requirements of the Criteria is class B1.

The Trusted Computer System Evaluation Summary Chart indicates the requirements and corresponding level that OS 1100 Security Release I satisfies.

For a complete description of how the OS 1100 operating system satisfies each requirement of the Criteria, see *Final Evaluation Report, UNISYS OS 1100* (Report No. CSC-EPL-89/004).

Trusted Computer System Evaluation Summary Chart



Does Not Satisfy the Requirement For This Class

No Requirements For This Class

No Additional Requirements For This Class

Meets or Exceeds the Requirements For This Class

Credit given above the overall rating recongnizes mechanisms implemented beyond those strictly required within the assigned rating class. Security testing was not conducted above the rated level, and the reader should not infer any assurance above this level.

System Name:

Unisys Corportation
OS 1100
Security Release I

Evaluation Date: 27 September 1989

Serial No. CSC-EPL-89/005

EVALUATED PRODUCT:	VM/SP or VM/SP HPO Conversational Monitor System (CMS) [1] Resource Access Control Facility (RACF) Directory Maintenance Licensed Program Product (DIRMAINT) VMTAPE-MS Interactive System Productivity Facility (ISPF)
VENDOR:	International Business Machines Corporation
VERSION EVALUATED:	VM/SP Release 5 VM/SP HPO Release 5 CMS Release 5 RACF Release 1.8.2 DIRMAINT Version 1.4 VMTAPE-MS Release 4.1 ISPF Release 2.2
EVALUATION DATE:	28 September 1989
OVERALL EVALUATIONCLASS:	C2

PRODUCT DESCRIPTION:

VM/SP (with or without HPO) with RACF, running on any IBM System/370 processor and related peripherals that it supports, is a trusted computing system that provides discretionary access control for all user data and other resources by giving each user a virtual machine (VM) for the execution of his own process, and by mediating all attempts by users running in other VMs to access the resources of any VM. Each user also has a dedicated subset of system DASD, referred to as minidisks, and CP mediates all attempts to access any minidisk by any VM other than that of the minidisk's owner.

VM/SP also provides four types of Interprocess Communications (IPC) and enforces discretionary access control among users of IPC. CMS provides a single-user operating system within each VM that allows the user access to real and virtual devices and to files on the user's own minidisk. Other products, all compatible with Virtual Machine/System Product Release 5 and included in the evaluation, are described below.

[1]CMS is shipped by IBM when VM/SP is ordered; it is not a separately purchased product. CMS is separately installed into the VM/SP system and, in fact, the VM/SP system will operate without CMS running in any user VM. However, CMS is used by several components of the TCB and, therefore, must be installed in several of the system VMs.

Resource Access Control Facility (RACF) is IBM's strategic facility for providing security services and support to VM/SP as well as many other IBM products. RACF provides numerous functions and features that greatly enhance an installation's control over its resources. RACF's flexibility and functionality supply a common base for security within many IBM products. VM/SP with RACF makes available privilege and protection mechanisms to limit user access to system-controlled structures in physical storage, user-controlled resources including virtual spool files and minidisks, and system- controlled devices. The evaluated product also provides extensive audit capabilities. RACF allows the owner of any resource to specify, down to the granularity of a single user, who will be allowed access to the resource. RACF is consulted by CP before allowing any requested access.

ISPF provides a set of menus that are used as an administrative interface to allow appropriate privileged users to add new users and their minidisks to the system while maintaining the integrity of the RACF and VM/SP databases of users and resources.

DIRMAINT allows appropriate privileged users to maintain the VM/SP directory of users, their virtual machine configurations, privileges and options, with the restriction that the ISPF menus are required to modify database entries for users and minidisks.

VMTAPE-MS maintains a Tape Management Catalog which enforces discretionary access control over standard-labeled tape volumes, allowing unprivileged users read and write access to their own tapes while preventing their access to those of others.

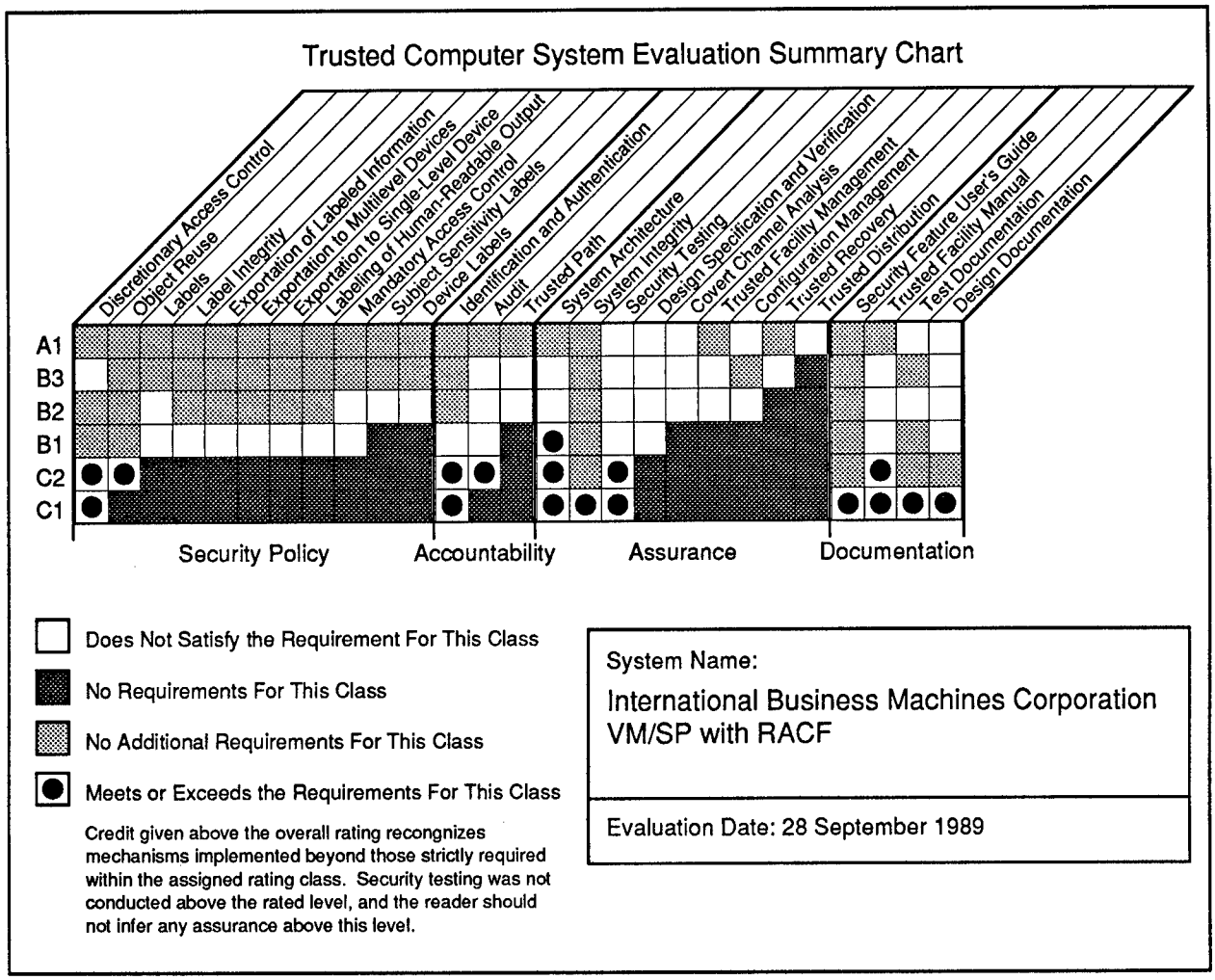
Additional system features include the capability to audit all CP commands and DIAGNOSE functions, all SPOOL functions, and each of the four types of interprocess (inter-virtual machine) communications; extensive audit reduction capabilities; the ability to support a different operating system, or a different version of the same operating system, within each VM and still provide process isolation through a combination of hardware and software techniques; and the use of trusted subjects, in the form of Service Virtual Machines, to provide security relevant services in a secure and efficient manner.

EVALUATION SUMMARY:

The security protection provided by VM/SP with RACF has been evaluated by the National Computer Security Center (NCSC) against the requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria* [DOD 5200.28-STD] (the Criteria) dated December 1985.

The NCSC evaluation team has determined that the highest class at which VM/SP with RACF satisfies all the specified requirements of the Criteria is class C2.

The Trusted Computer System Evaluation Summary Chart below indicates the requirements and corresponding level that VM/SP with RACF satisfies.



The rating given to the evaluated system (viz., C2) is the highest level of the Criteria at which the system satisfies all the specified requirements. For a complete description of how VM/SP with RACF satisfies each requirement of the Criteria, see *Final Evaluation Report, International Business Machines Corporation VM/SP with RACF* (Report No. CSC-EPL-89/005). In addition, the Report should also be consulted for the complete lists of evaluated hardware and software components as well as all the necessary Authorized Program Analysis Report (APAR) numbers.

To get the exact version evaluated, order the "C2 Security (US Dept. of Defense) Features." the complete list of PUT service applied to each of the products above to create the evaluated system can be found in the NCSC Final Evaluation Report for this system.

Serial No. CSC-EPL-90/002

EVALUATED PRODUCT:

Multiple Virtual Storage/System Product (MVS/SP)
Job Entry Subsystem 2 (JES2)
Job Entry Subsystem 3 (JES3)
Data Facility Product (DFP)
Resource Access Control Facility (RACF)
Time Sharing Option / Extensions (TSO/E)
Advanced Communications Function / Virtual Telecommunications Access Method (ACF/VTAM) [1]
Print Services Facility (PSF)
Enterprise Systems Architecture/370 (ESA/370) [2]
(collectively referred to as MVS/ESA) [3]

VENDOR:

International Business Machines Corporation

VERSION EVALUATED:

MVS/SP Version 3 Release 1.3
JES2 Version 3 Release 1.3
JES3 Version 3 Release 1.3
DFP Version 3 Release 1.1
RACF Version 1 Release 9
TSO/E Version 2 Release 1.1
ACF/VTAM ESA Version 3 Release 3
PSF Version 1 Release 3

EVALUATION DATE:

17 September 1990

OVERALL EVALUATION CLASS:

B1

PRODUCT DESCRIPTION:

MVS/SP is IBM's operating system for its computers that offer the Enterprise Systems Architecture (ESA/370). The system provides generalized facilities that support a wide variety of usages including concurrent execution of multi-user time-sharing, batch, and real-time applications.

RACF is IBM's strategic facility for providing security services and support to MVS/SP.

[1] ACF/VTAM isa registered trademark of the IBM Corporation.
[2] ESA/370 is a registered trademark of the IBM Corporation.
[3] MVS/ESA is a registered trademark of the IBM Corporation.

RACF provides numerous functions and features that greatly enhance an installation's control over its resources. RACF's flexibility and functionality supply a common base for security within many IBM products. MVS/SP with RACF make available privilege and protection mechanisms to limit user access to system-controlled structures in physical storage, system-structured volumes and files, and certain devices.

The evaluated software encompasses all other products listed above supplying MVS/SP with a wide functionality. Furthermore, several MVS/ESA systems may be operated together within an MVS/ESA JES complex while retaining the overall rating. Eventhough MVS/ESA has all the features necessary for networking, the B1 rating applies to only those MVS/ESA systems utilized as stand-alone systems.

MVS/ESA uses resource access control lists to provide discretionary access controls and maintains a security label for each subject and object by which mandatory access control decisions are made. Additionally, MVS/ESA provides user identification and authentication through user IDs and passwords, and individual accountability through its auditing capability.

The ESA/370 architecture specifies several protection mechanisms. In general, user programs execute in the problem state while the system programs run in the supervisor state. User separation is achieved with an extensive memory and address space management. System programs are further isolated by means of protection keys.

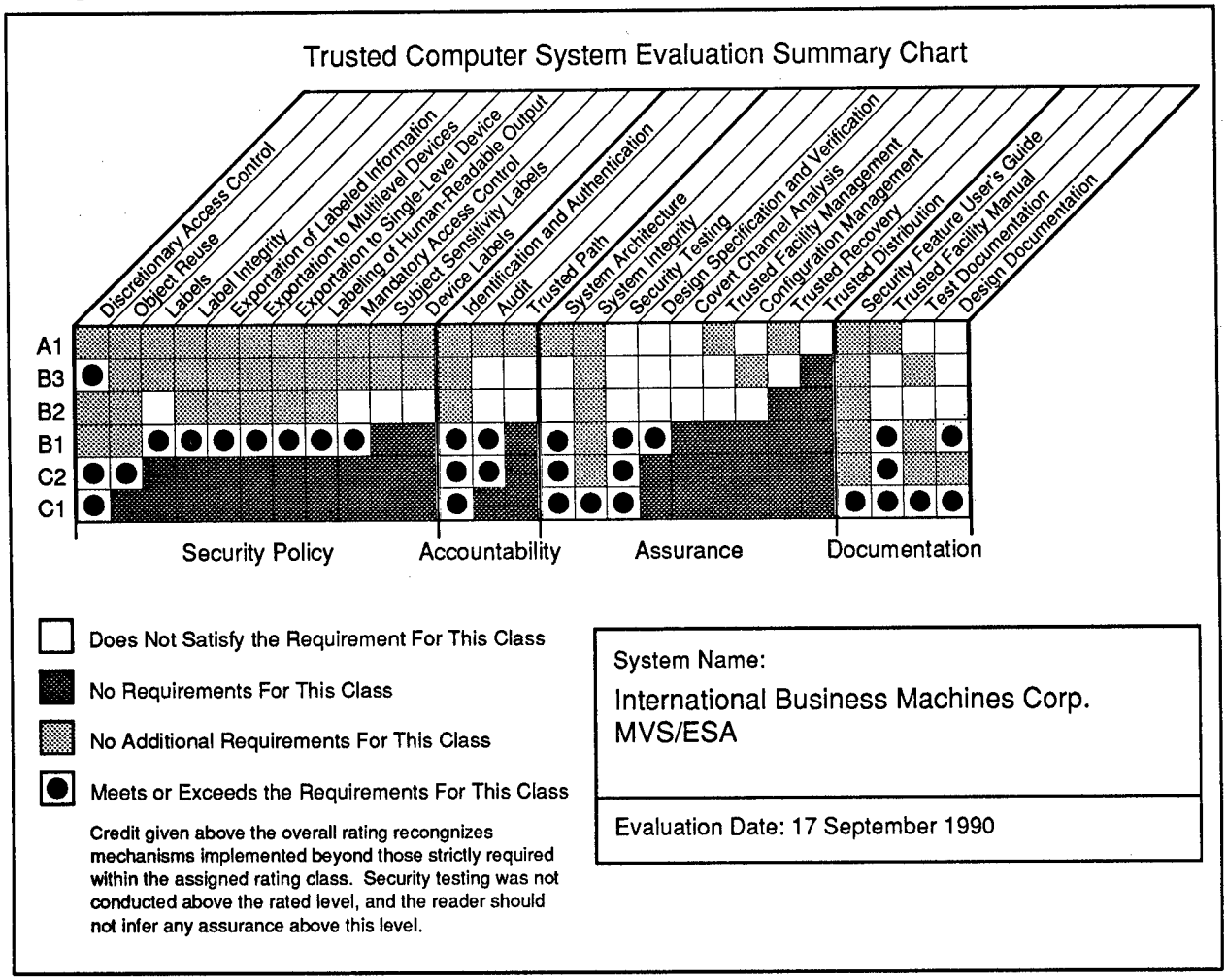
The evaluated software is supported by IBM¡ processors supporting ESA/370. This product line ranges from mid-range 4381 computers to 3090 mainframes with six central processors and six vector facilities. In addition, fifteen models of the 3090 computers may be operated in certain partitioned configurations while maintaining the security of each system and, hence, the awarded rating.

EVALUATION SUMMARY:

The security protection provided by MVS/ESA, configured according to the most secure manner described in the Trusted Facility Manual, has been evaluated by the National Computer Security Center (NCSC) against the requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria* [DOD 5200.28-STD] dated December 1985.

The NCSC evaluation team has determined that the highest class at which MVS/ESA satisfies all the specified requirements of the Criteria is class B1. Due to IBM's decision not to participate in the Ratings Maintanence process, the NCSC is unable to evaluate future changes to the system.

The figure below indicates the requirements and corresponding level that MVS/ESA satisfies.



The rating given to the evaluated system (viz., B1) is the highest level of the Criteria at which the system satisfies all the specified requirements. For a complete description of how MVS/ESA satisfies each requirement of the Criteria, see *Final Evaluation Report, International Business Machines Corporation MVS/ESA* (Report No. CSC-EPL-90/002). In addition, the Report should also be consulted for the complete lists of evaluated hardware and software components as well as all the necessary PTF numbers.

	Serial No: **CSC-EPL-90/004**
EVALUATED PRODUCT:	SVS/OS CAP 1.0
VENDOR:	Wang Laboratories, Inc.
EVALUATION DATE:	28 September 1990
OVERALL EVALUATION CLASS:	C2

PRODUCT DESCRIPTION:

Wang's Secure Virtual Storage Operating System with Controlled Access Protection, SVS/OS CAP 1.0, runs on the Wang VS Product Family, a series of 32-bit super-minicomputers with a virtual memory system that can support from 512 KB to 32 MB of addressable physical storage. SVS/OS CAP 1.0 consists of the VS operation system, Release 7.33.36, Enhanced Security Access Controls (ESAC) Version 2.0, and I/O Device Support Package Version 5.0.

SVS/OS CAP 1.0 is a general-purpose time-sharing system which supports identification and authentication of users, discretionary access controls, object reuse protection, and auditing.

SVS/OS CAP 1.0 provides isolation of the TCB from users. Process isolation is implemented through the use of individual process virtual address spaces and hardware memory protection mechanisms.

User accounts are maintained in a protected system file by the System Administrator. Each account has a logon ID and a password. SVS/OS CAP 1.0 also provides optional password control capabilities which include system generated passwords; password expiration; ID by time and date; enforcing minimum password length; maintaining a password history to prevent their reuse; and password encryption.

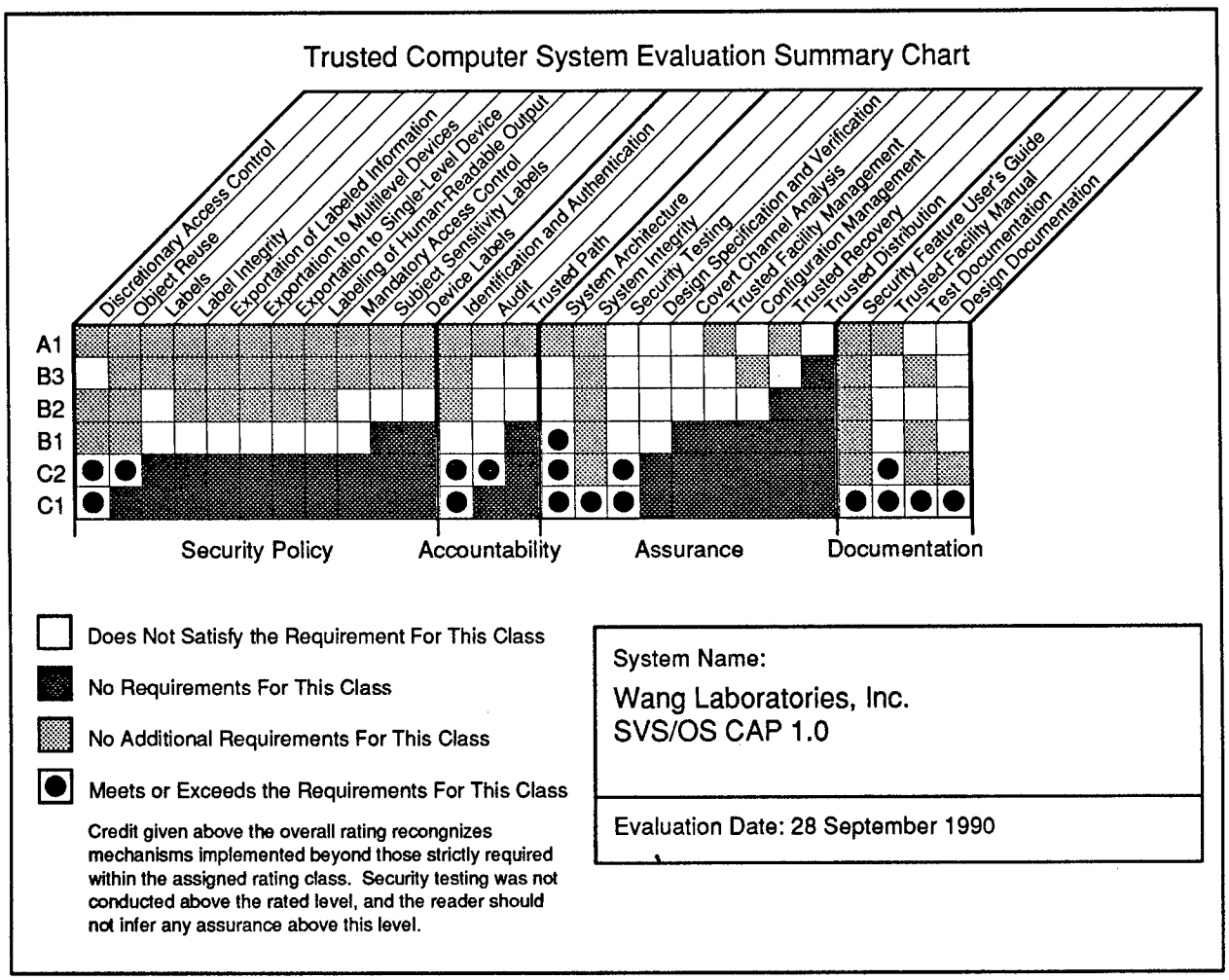
Discretionary access controls (DAC) on files consist of access control lists and file protection classes which use hierarchical access levels (Write, Read, Execute, and Null). The access control lists can allow access by, or deny access to, individuals or groups of individuals.

SVS/OS CAP 1.0 provides auditability of all security-relevant events. The SA can select events to be audited, create log files, and specify log file sizes. The selectivity of events is based on three categories: system, file, and user. System events are the events auditable for eery file and user on the system. File events are the auditable events related to a particular file, or set of files, and user events are the events auditable for a given user ID or set of user IDs, including operators. The SA is able to select events to be audited through a menu-driven interface. VS/OS CAP 1.0 allows the SA to produce reports based upon the audit data. These reports are easy to read and interpret.

EVALUATION SUMMARY:

The security protection provided by SVS/OS CAP 1.0 has been evaluated by the National Computer Security Center (NCSC) against the requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria*, (TCSEC), 26 December 1985, DOD 5200.28-STD, and under the provisions of the Rating Maintenance Phase (RAMP). The evaluated hardware set includes the following CP-types: CP4, CP7, CP8, CP9, Cp10, and CP12.

The Trusted Computer System Evaluation Summary Chart on the next page indicates the requirements and corresponding level that SVS?OS CAP 1.0 satisfies. For a complete description of how SVS/OS CAP 1.0 satisfies each requirement of the TCSEC, see *Final Evaluation Report, Wang Laboratories, Inc., SVS/OS CAP 1.0*(Report No. CSC-EPL-90/004).



Serial No. **CSC-EPL-91/003**

EVALUATED PRODUCT: Trusted XENIX

VENDOR: Trusted Information Systems, Inc. (TIS)

VERSION EVALUATED: Trusted XENIX Version 2.0

EVALUATION DATE: 22 January 1991

OVERALL EVALUATION CLASS: B2

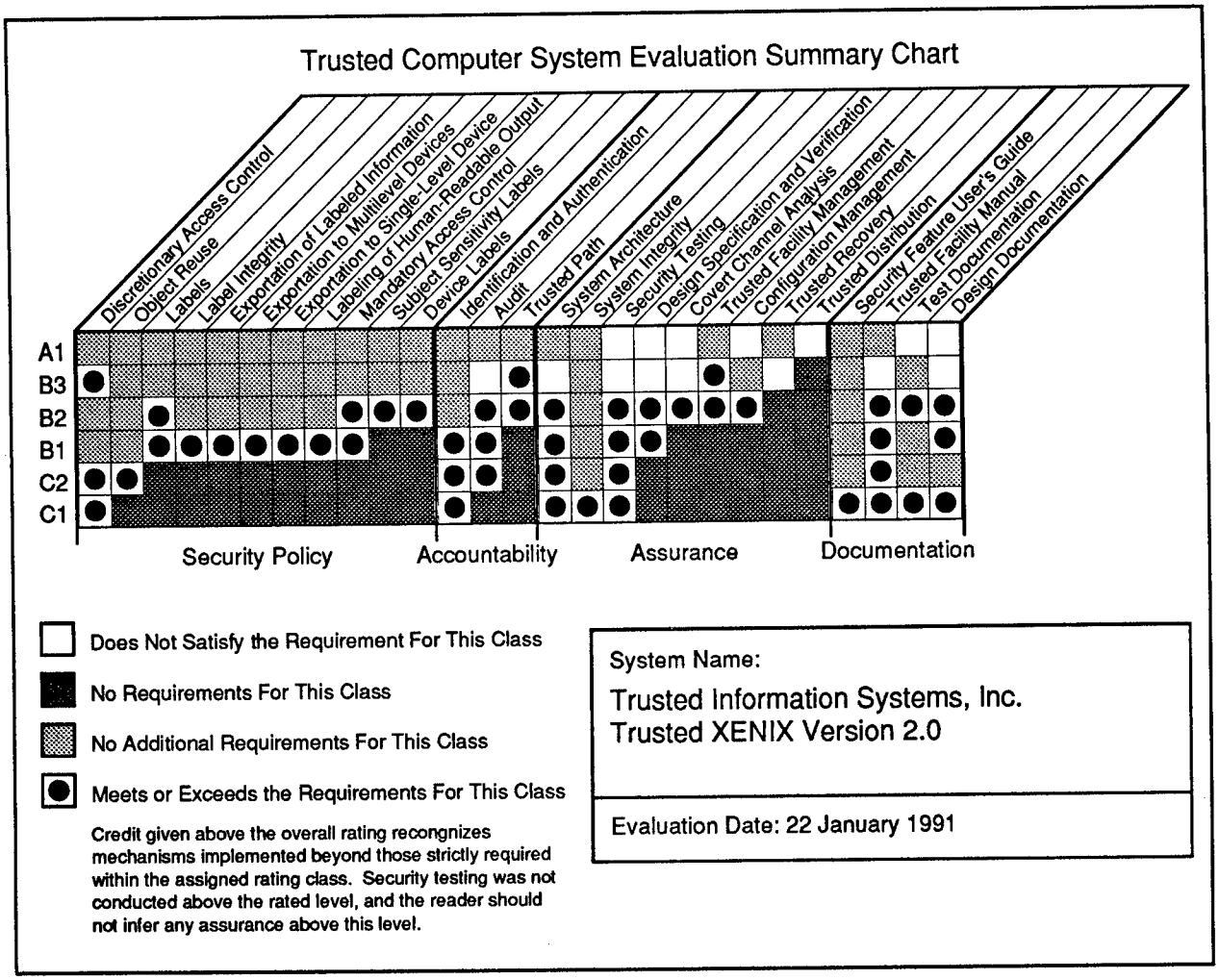
PRODUCT DESCRIPTION:

Trusted XENIX Version 2.0 (Trusted XENIX) [1] is a UNIX-like,multi-level secure operating system for the IBM Personal Computer AT (PC AT), and IBM Personal System/2 (PS/2) Models 50, 60, 70, 70T, 70P and 80 [2] . It is a multi-user, multi-tasking system which can support up to six concurrent users using currently available IBM equipment. Trusted XENIX contains many functional and security enhancements while maintaining binary compatibility with programs developed under IBM Personal Computer XENIX versions 1.0 and 2.0.

Trusted XENIX is designed to provide a high level of security for environments requiring trusted desktop data processing. Trusted XENIX enforces a mandatory security policy based on the Bell and LaPadula security model. Discretionary access controls include traditional UNIX [3] protection bits, as well as Access Control Lists. Trusted XENIX performs user identification and authentication, generates audit trail records, and provides a base upon which to build secure application programs. Evaluated hardware configurations include a range of disks, disk controllers, video configurations, and a cartridge tape unit for fast system back-up and restore.

The system enforces the "principle of least privilege" (i.e., users should have no more authorization than what is required to perform their functions) for each of the four defined privileged user roles available in multi-user mode. These privileged users are assigned to one of the four following roles: System Security Administrator, Secure Operator, Account Administrator, and Auditor. This separation is supported by strictly limiting privileged users to predefined operations. In addition, all actions performed by privileged users can be audited, and the audit log cannot be modified by unprivileged users, the System Security Administrator, Secure Operator, or Account Administrator. In addition, there is also a Trusted System Programmer who is responsible for initial hardware and system configuration. This role only exists in single-user mode.

[1] XENIX is a trademark of the Microsoft Corporation.
[2] IBM, Personal Computer AT and Personal System/2 are registered trademarks of the IBM Corporation.
[3] UNIX is a registered trademark of AT&T Bell Laboratories, Inc.



EVALUATION SUMMARY:

The security protection provided by Trusted XENIX, configured according to the most secure manner described in the Trusted Facility Manual, has been evaluated by the National Computer Security Center (NCSC) against the requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria* [DOD 5200.28-STD] dated December 1985.

The NCSC evaluation team has determined that the highest class at which Trusted XENIX satisfies all the specified requirements of the Criteria is class B2. In addition, Trusted XENIX satisfies the functionality of the B3 requirements for DAC, Trusted Path, and Trusted Facility Management.

For a complete description of how Trusted XENIX satisfies each requirement of the Criteria, see *Final Evaluation Report, Trusted Information Systems' Trusted XENIX* (Report No. CSC-EPL-91/003). In addition, the report should also be consulted for the complete lists of evaluated hardware and software components.

Serial No. **CSC-EPL-91/004**

EVALUATED PRODUCT: Compartmented Mode Workstation Plus (CMW+) [1] Version 1.0

VENDOR: SecureWare, Inc.

EVALUATION DATE: 30 January 1991

EVALUATION CLASS: B1

PRODUCT DESCRIPTION:

SecureWare's Compartmented Mode Workstation Plus (CMW+) Version 1.0 is a multilevel secure version of Apple Computer's A/UX [2] Release 1.1 for the Macintosh IIx and Macintosh IIcx [3] workstations. It incorporates trusted multilevel versions of the X Window System Version 11, Release 3 (X11R3) and the OSF/Motif Window Manager Version 1.0. CMW+ is a general-purpose, multi-tasking operating system with a windowing environment. It adds the security and functional enhancements required by the Trusted Computer System Evaluation Criteria (TCSEC) to A/UX, the X Window System [4] and the OSF/Motif [5] Window Manager.

CMW+ is designed to provide security for environments requiring trusted desktop data processing. In addition to providing the traditional user specified access controls (i.e., discretionary access controls) through protection bits, CMW+ provides access control lists, which provide a more flexible user specified access mechanism, and mandatory access control, to control the distribution of information protected by the system to only those users who have been authorized for the information. The mandatory security policy is consistent with the Bell-La Padula model and conforms with Department of Defense policy. In addition, CMW+ provides an information labeling policy on the information contained in objects. A virtually unlimited number of classifications and compartments are supported.

CMW+ provides user identification and authentication through usernames and passwords, and individual accountability through its auditing mechanisms. The authentication features of CMW+ comply with the guidelines recommended in the *DoD Password Management Guideline*, CSC-STD-002-85. The auditing mechanism is controlled from a Motif-based interface and supports pre and post-selection by user, group, event and sensitivity level range.

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[1] CMW+ is a trademark of SecureWare, Inc.
[2] A/UX is a trademark of Apple Computer, Inc.
[3] Apple and Macintosh are registered trademarks of Apple Computer, Inc.
[4] The X Window System is a tradmark of the Massachusetts Institute of Technology
[5] OSF/Motif and Motif are trademarks of Open Software Foundations, Inc.

A trusted X server and trusted Motif window manager provide a trusted path mechanism for login and for performing security-relevant functions. The security policies have been implemented using X protocol extensions in a binary backwards-compatible manner.

The system supports three separate privileged user roles as defined in the CMWREQs for maintaining the system: System Administrator, Information System Security Officer (ISSO) and Operator. Motif-based programs are provided for the System Administrator and ISSO to enable them to easily administer the audit subsystem, user accounts and the device subsystem.

CMW+ supplies a privilege mechanism and a number of discrete privileges that may be used to implement the principle of least privilege. CMW+ also supports configurable command authorizations on a per user basis to limit access to various commands. CMW+ is delivered with a number of programs which may be used to reduce the likelihood of data compromise in the event of a system failure.

CMW+ can transfer data, including all security attribute information, to and from other SewcureWare based systems via removable media. SecureWare has designed CMW+ to be compatable with many other systems that are available in the marketplace.

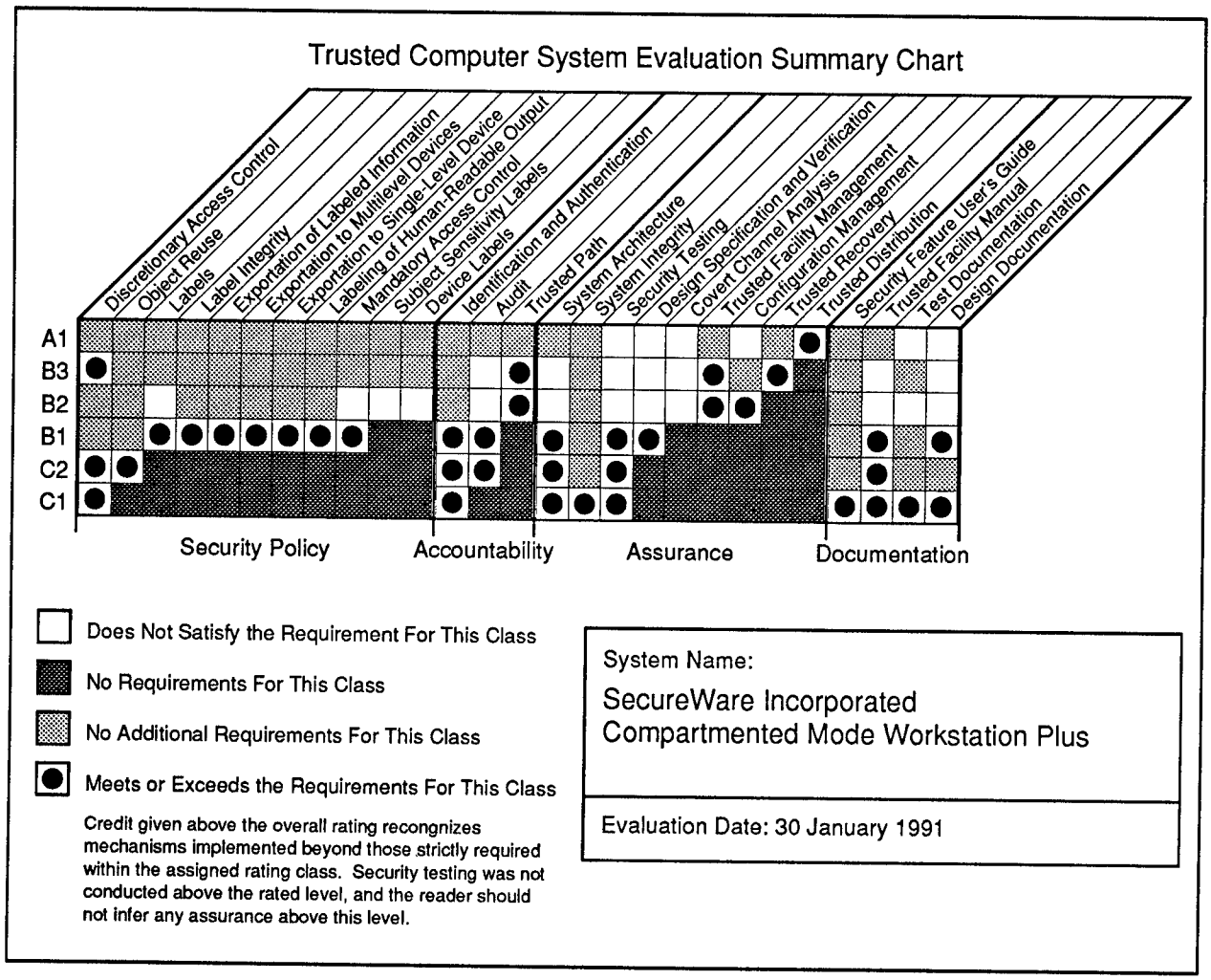
EVALUATION SUMMARY

The security protection proveded by SecureWare Compartmented Mode Workstation Plus (CMW+) operating system running on Apple Macintosh IIx or IIcx workstations, configured as described in the CMW+ Trusted Facility Manual, has been evaluated against the requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria* [DoD 5200.28-STD], dated 1985.

The evaluation team has determined that the highest class at which SecureWare CMW+ satisfies all the specified requirements of the Criteria is B1. In addition, SecureWare CMW+ satisfies the funcionality of the B2 requirement for Configuration Management, the B3 requirement for DAC, Trusted Path, Trusted Facility Management, Trusted Recovery, and the A1 requirement for Trusted Distribution.

In conjunction with the TCSEC evaluation, CMW+ was also evaluated against the *Compartmented Mode Workstation Requirements* of the *Security Requirements for Systems High and Compartmented Mode Workstations.* Se the entry in the TCB Extentions List for more information.

For a complete description of how SecurewWare CMW+ satisfies each requirement of the TCSEC, se *Final Evaluation Report, SecureWare Inc., CMW+* (Report No. CSC-EPL-91/004). In additin the report should be consulted for the complete lists of evaluated hardware and software components.


Trusted Computer System Evaluation Summary Chart
Discretionary Access Control
Object Reuse
Labels
Label Integrity
Exportation of Labeled Information
Exportation to Multilevel Devices
Exportation to Single-Level Device
Labeling of Human-Readable Output
Mandatory Access Control
Subject Sensitivity Labels
Device Labels
Identification and Authentication
Audit
Trusted Path
System Architecture
System Integrity
Security Testing
Design Specification and Verification
Covert Channel Analysis
Trusted Facility Management
Configuration Management
Trusted Recovery
Trusted Distribution
Security Feature User's Guide
Trusted Facility Manual
Test Documentation
Design Documentation
A1
B3
B2
B1
C2
C1
Security Policy
Accountability
Assurance
Documentation
Does Not Satisfy the Requirement For This Class
No Requirements For This Class
No Additional Requirements For This Class
Meets or Exceeds the Requirements For This Class
Credit given above the overall rating recongnizes mechanisms implemented beyond those strictly required within the assigned rating class. Security testing was not conducted above the rated level, and the reader should not infer any assurance above this level.
System Name:
SecureWare Incorporated
Compartmented Mode Workstation Plus
Evaluation Date: 30 January 1991

4-3c

ADD-ON PACKAGE EPL ENTRIES

Serial No. **CSC-EPL-84/001**

EVALUATED PRODUCT: Resource Access Control Facility (RACF)

VENDOR: International Business Machines, Corp.

VERSIONS: RACF Version 1 Release 5

DATE: 23 July 1984

OVERALL EVALUATION CLASS: C1

PRODUCT DESCRIPTION

RACF is IBM's MVS facility that provides controlled access to system resources. RACF with MVS/370 was the evaluated configuration; however, RACF is also supported under MVS/XA. RACF is designed to limit access to resources by identifying authorized users and protected resources, then controlling users' access to those resources.

RACF also provides the security administrator with the option of default protection on permanent Direct Access Storage Device (DASD) data sets. RACF provides protection for data sets resident on DASD, IBM Mass Storage Systems (MSS) and tape volumes. Access levels of ALTER, CONTROL, UPDATE, READ, and NONE are supported for DASD data sets. Interfaces between RACF and other IBM products, including Information Management System (IMS) and Customer Information Control System (CICS), are supported by IBM.

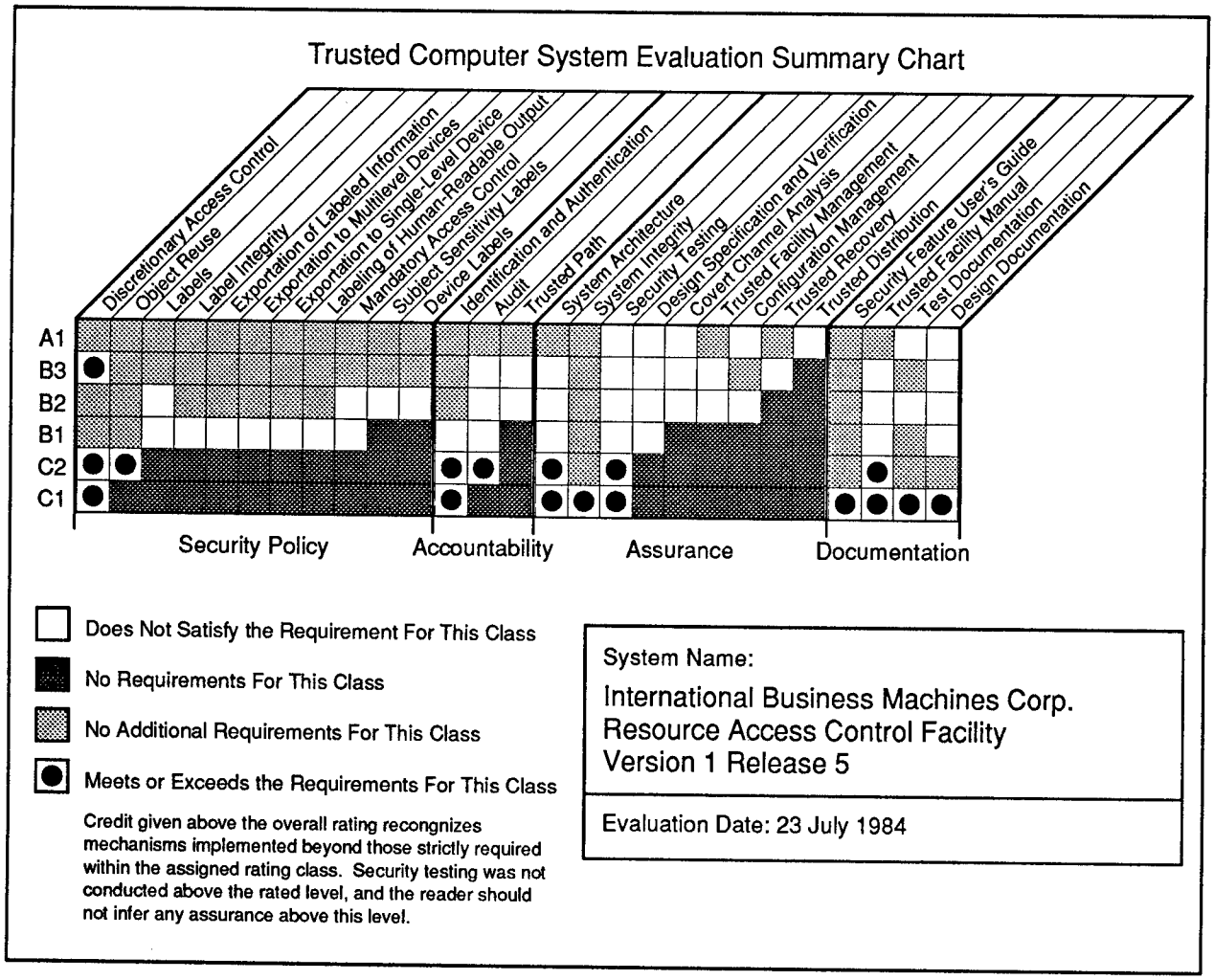
EVALUATION SUMMARY:

The security protection provided by the IBM Resource Access Control Facility (RACF) Version 1, Release 5 running with the Multiple Virtual Storage/System Product (MVS/SP) 1.3.2 operating system has been evaluated by the Department of Defense Computer Security Center (DoDCSC). The security features of RACF/MVS were evaluated against the requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria* (the Criteria), dated 15 August 1983.

The DoDCSC evaluation team has determined that the highest class at which RACF/MVS satisfies all the specified requirements of the Criteria is class C1. Further, RACF/MVS was found to meet or exceed many of the requirements for class C2.

The overall system integrity level of RACF/MVS is C1. It appears that RACF/MVS can evolve to meet the C2 level of the Criteria, however, RACF/MVS can not meet higher levels of the Criteria without significant modification or reimplementation of a major fraction of MVS and its supporting subsystems.

At the time of the evaluation, MVS was the only operating system that supported RACF Version 1 Release 5. The integrity of RACF is dependent upon the integrity of the MVS system itself.



The rating given to the evaluated system (viz., C1) is the highest level of the Criteria at which the system satisfies all the specified requirements. The "range of feasible use" is intended to convey the overall system integrity level of the system as it is delivered by the vendor and indicates that this system could be used in an environment requiring an evaluation class within this range so long as the missing features are not essential to the operational capability. For a complete description of how RACF/MVS satisfies each requirement of the Criteria, see *Final Evaluation Report, Resource Access Control Facility (RACF)*, Version 1, Release 5 (Report No. CSC-EPL-84/001).

Serial No. **CSC-EPL-84/002**

EVALUATED PRODUCT: Access Control Facility 2 (ACF2)

VENDOR: SKK, Inc.

VERSIONS: ACF2 Release 3.1.3

DATE: 3 August 1984

OVERALL EVALUATION CLASS: C2

PRODUCT DESCRIPTION:

The ACF2 security subsystem is designed to provide security for data stored on computer systems using the IBM MVS or VSI operating systems. ACF2 provides protection by default for data sets resident on Direct Access Storage Devices (DASDs), IBM 3850 Mass Storage System (MSS) and tape volumes. Protection levels of READ, WRITE, ALLOCATE (allocation, rename, scratch and catalog functions) and EXECUTE-only are supported. Interfaces between ACF2 and many popular commercial software products are provided by SKK. These software products include Information Management System (IMS) and Customer Information Control System (CICS) by IBM.

EVALUATION SUMMARY:

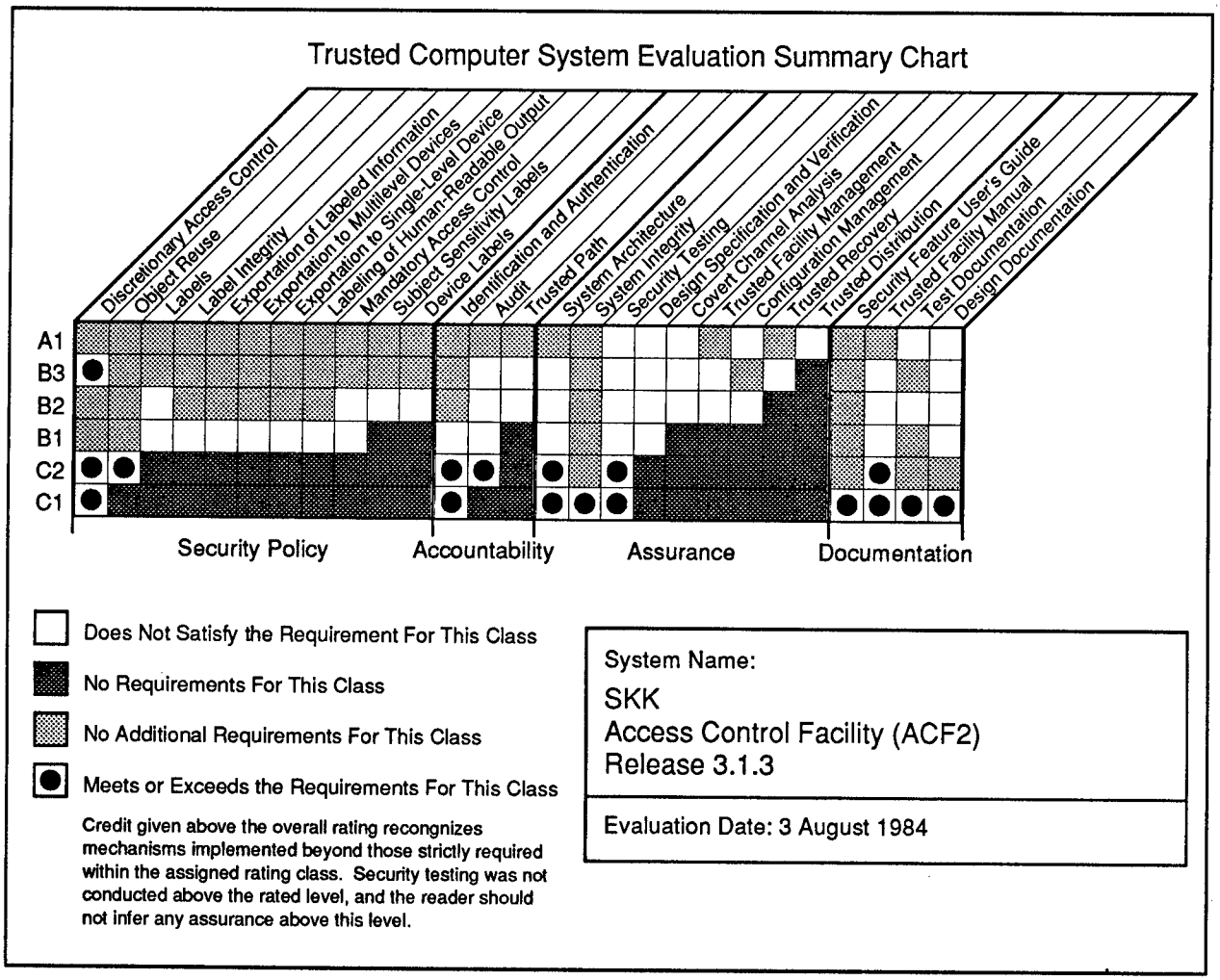
The security protection provided by SKK's Access Control Facility 2 (ACF2) Release 3.1.3 running with Multiple Virtual Storage/System Product (MVS/SP) 1.3.3 operating system has been evaluated by the Department of Defense Computer Security Center (DoDCSC). The security features of the ACF2/MVS were tested against the requirements specified by the*Department of Defense Trusted Computer System Evaluation Criteria* (the Criteria), dated 15 August 1983.

The DoDCSC evaluation team has determined that the highest class at which ACF2/MVS satisfies all the specified requirements of the Criteria is class C2.

The overall system integrity level of the ACF2/MVS is C2. ACF2/MVS can not meet higher levels of the Criteria without significant modification or reimplementation of a major fraction of MVS and its supporting subsystems.

The evaluation of ACF2 was conducted on the MVS operating system only. The integrity of ACF2 is dependent upon the integrity of the MVS system itself.

The rating given to the evaluated system (viz., C2) is the highest level of the Criteria at which the system satisfies all the specified requirements. The "range of feasible use" is intended to convey the overall system integrity level of the system as it is delivered by the vendor and indicates that this system could be used in an environment requiring an evaluation class within this range so long as the missing features are not essential to the operational capability.



For a complete description of how ACF2/MVS satisfies each requirement of the Criteria, see Final Evaluation Report, SKK Access Control Facility 2 (ACF2), Release 3.1.3 (Report No. CSC-EPL-84/002).

	Serial No. **CSC-EPL-85/002**
EVALUATED PRODUCT:	TOP SECRET
VENDOR:	CGA Software Products Group, Inc.
VERSIONS:	Version 3.0 Level 163 with Feature Option #43
DATE:	2 April 1985
OVERALL EVALUATION CLASS:	C2

PRODUCT DESCRIPTION

TOP SECRET is an add-on security package developed by CGA Software Products Group, Inc. for IBM's Multiple Virtual Storage (MVS) operating system. TOP SECRET provides default protection of system facilities, data sets resident on DASD devices, and DASD and tape volumes. TOP SECRET also provides the capability for decentralized access control through several layers of security administration, extensive audit features (both on-line and batch), and the capability to gradually implement the security provided by the TOP SECRET package.

Interfaces between TOP SECRET and many commercial software products are provided by CGA. These include: Information Management System (IMS), Customer Information Control System (CICS), ROSCOE, COMPLETE, TSO, IDMS, PANVALET, and others.

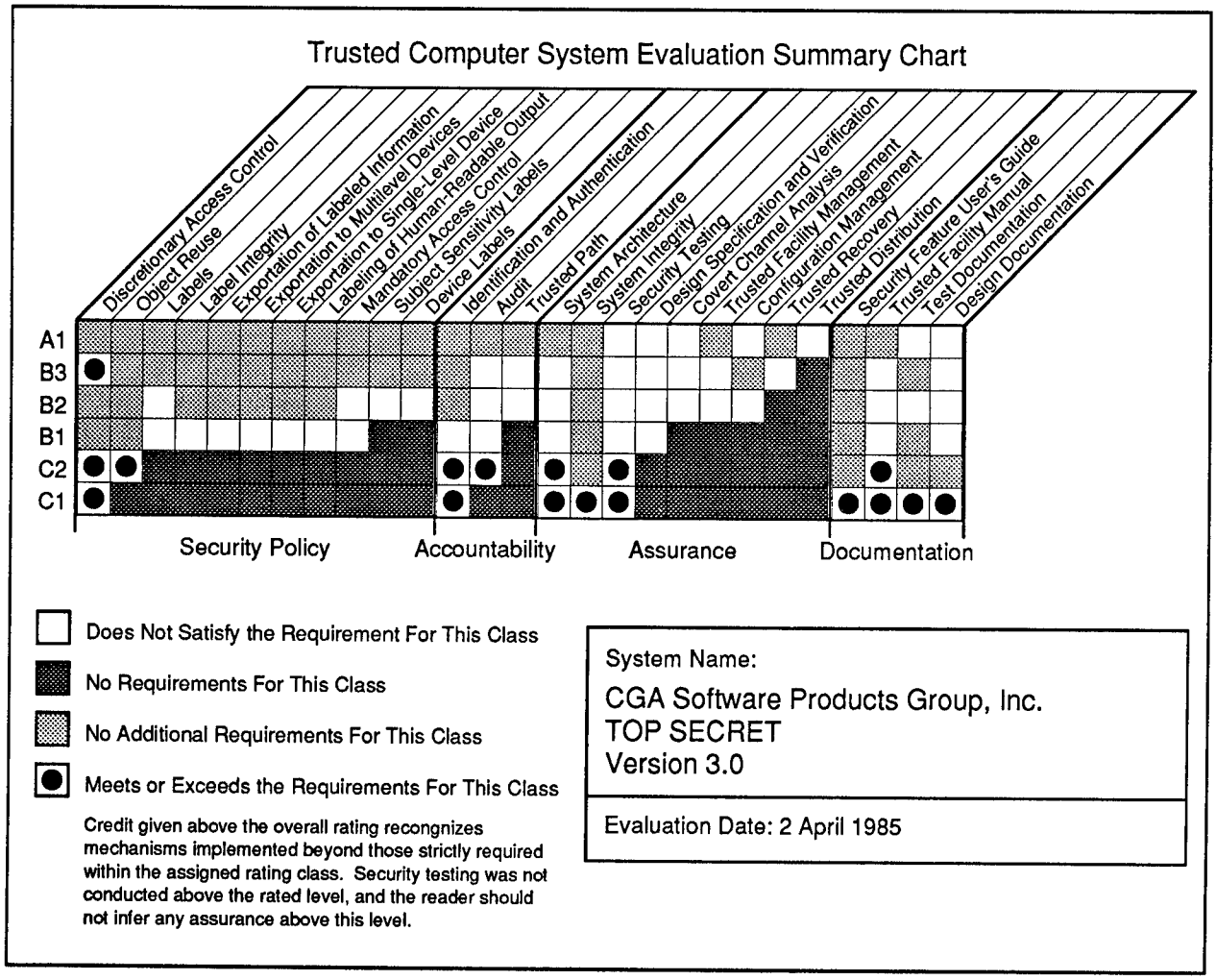
EVALUATION SUMMARY:

TOP SECRET Version 3.0 Level 163 running with IBM's Multiple Virtual Storage/System Product (MVS/SP) operating system has been evaluated by the Department of Defense Computer Security Center (DoDCSC). The security provided by TOP SECRET was evaluated against the requirements specified in the *Department of Defense Trusted Computer System Evaluation Criteria* (the Criteria) dated 15 August 1983.

The DoDCSC's evaluation team has determined that the highest class for which TOP SECRET Version 3.0 satisfies all the requirements of the Criteria is class C2. Note that this rating is applicable only to TOP SECRET configured as detailed in the final evaluation report. TOP SECRET does not satisfy the requirements for any of the B levels as it does not provide labelling capabilities and thus does not possess a mandatory access control mechanism.

A class B1 rating is considered attainable but would require a significant amount of work to implement the necessary mechanisms. TOP SECRET could not, however, evolve to a class higher than B1 without a major reimplementation of the majority of the MVS operating system and its subsystems.

At the time of the evaluation, TOP SECRET Version 3.0 ran only with the MVS operating system. The overall integrity of the TOP SECRET package is directly dependent upon the integrity of the MVS system itself.



The figure above indicates the requirements and corresponding level that TOP SECRET/MVS satisfies.The rating given to the evaluated system (viz., C2) is the highest level of the Criteria at which the system satisfies all the specified requirements. The "range of feasible use" is intended to convey the overall system integrity level of the system as it is delivered by the vendor and indicates that this system could be used in an environment requiring an evaluation class within this range so long as the missing features, if any, are not essential to the operational capability. For a complete description of how TOP SECRET/MVS satisfies each requirement of the Criteria, see Final Evaluation Report, TOP SECRET Version 3.0 (Report No. CSC-EPL-85/002).

4-3d
SUBSYSTEM EPL ENTRIES

Serial No. **CSC-EPL-86/001**

EVALUATED PRODUCT: Gordian Systems Access Key

VENDOR: Gordian Systems Incorporated

VERSIONS: A.00

DATE: 7 April 1986

PRODUCT DESCRIPTION

The Gordian Systems Access Key product is a user authentication mechanism for use with computer systems that either lack a user authentication capability or require additional authentication assurance. The Access Key product is a "challenge/response" device. After a user has identified himself to the host system, the Access Key system "challenges" the user by flashing a stimulus on the terminal screen and waits for the user to enter the proper password "response". The user attains the correct password by holding the Access Key device to the terminal screen and allowing it to read and decrypt the visual challenge. The Access Key device returns the appropriate six-character password on its LCD display. The Access Key system consists of the domino-sized Access Key, software that is integrated with the host system, and a "Key Cutter" device that initializes each Key with a unique encryption profile.

EVALUATION SUMMARY:

The Gordian Systems Access Key product has been evaluated against the user authentication requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria*, dated 15 August 1983. The NCSC evaluation team has determined that the Access Key system is an effective user authentication mechanism. It can provide a user authentication capability for computer security architectures that lack such a feature. In addition, authentication assurance could be enhanced by coupling the Access Key System with an existing authentication scheme.

The product satisfies vendor claims regarding its effective use as described in the Gordian Systems Access Management Brochure, August 1985. The product is able to uniquely identify each user, but it does not provide protection for the host-resident user authentication data. The Access Key documentation clearly states that the product is intended for integration with a security system that can restrict access to the Access Key software and data residing on the host. The functional integrity of the Access Key system depends upon the degree of protection the host provides to this software and data.

Serial No. CSC-EPL-86/002

EVALUATED PRODUCT: CPP-300 Trusted Path Port Protector

VENDOR: Codercard Incorporated

VERSIONS: 1 August 1985

DATE: 7 April 1986

PRODUCT DESCRIPTION

The Codercard Trusted Path Port Protector is a user authentication mechanism for use with computer systems that either lack a user authentication capability or require additional authentication assurance. It is designed to operate in pairs, and to protect a single asynchronous communications path between computers or equivalent devices such as terminals. In order for the authentication to be successful, the Codercard Reader at each end of the communication line exchanges a series of random numbers with the Codercard at the other end. In this way, a two-way challenge and response authentication is accomplished. Only after exchanges have been completed successfully in both directions is access to the communication line granted.

EVALUATION SUMMARY:

The Codercard Trusted Path Port Protector has been evaluated against the user authentication requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria*, dated 15 August 1983. The NCSC evaluation team has determined that the Trusted Path Port Protector is an effective user authentication mechanism. The CPP-300 is not intended to encrypt data that goes over communication links but merely to generate pseudo random numbers and perform a handshaking protocol that authenticates the identity of both ends of the communication link. Thus it is not intended to provide any protection against eavesdropping. In addition, the CPP-300 does not provide the assurance that users are communicating with the trusted software on the host computer system. However, it does assure the user that he is communicating with the correct host system's CPP-300, and that the user accessing the system has a valid Codercard. The evaluation team recommends the CPP-300 as another barrier to deny unauthorized users access to a computer system rather than as a replacement for other identification and authentication mechanisms.

Serial No. CSC-EPL-86/005

EVALUATED PRODUCT: Watchdog PC Data Security

VENDOR: Fischer International

VERSIONS: 4.1

DATE: 24 October 1986

PRODUCT DESCRIPTION

Watchdog is an IBM PC/XT or compatible software package which provides user access control to programs and files (discretionary access control), user logon procedures (identification and authentication), user auditing (audit), and object reuse. In addition to these highly desirable security features, Watchdog also provides some protection against unauthorized attempts to either accidentally or maliciously format or access the data stored on the fixed disk. Watchdog provides additional data protection by encrypting stored information.

EVALUATION SUMMARY:

The Watchdog PC Data Security Product has been evaluated against the user identification and authentication, discretionary access control, object reuse, and audit requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria* dated 15 August 1983.

The NCSC evaluation team has determined that the Watchdog PC Data Security product, when configured as tested, does effectively implement these mechanisms. This product maintains user identification and authentication by requiring each user to enter a proper user ID and password prior to gaining access to the computer. Watchdog also mediates access between users and protected files. Users are only allowed to access (i.e., read, read/write, or create) those files for which access permissions have been specifically granted by the System Administrator.

In the process of mediating user access, this product maintains an audit record of users actions (e.g., user attempts to access protected files - both success and failure, user logon, user logoff, etc.). Watchdog also modifies the last user work space such that the next user will not be able to recover any of the first user's data.The evaluation team has determined that these security features can be maintained only if the general user is prevented from modifying Watchdog's operating code. Therefore, the system administrator must ensure that the application programs run by the users do not allow the user direct access to the IBM DOS operating system (e.g., programs which can be used to modify system code; DOS commands, compilers, assemblers, etc.).

Serial No. **CSC-EPL-86/006**

EVALUATED PRODUCT: Sytek PFX A2000/A2100 (PFX Passport)

VENDOR: Sytek, Inc.

DATE: 19 November 1986

PRODUCT DESCRIPTION

The Sytek PFX (model numbers A2000 or A2100) in conjunction with the PFX Passport is intended to serve as a user authentication mechanism for use with a wide range of host architectures. The Sytek PFX A2000 which runs on a PC/AT (or compatible), and the Sytek PFX A2100 which runs on a PC, PC/XT and PC/AT computers were both evaluated by the National Computer Security Center. Each of these systems consists of a microcomputer (IBM PC/AT or compatible), associated software, and a handheld Passport device. For use, a system user enters his personal identification number into the Passport. He then enters his login identification to the host system which prompts him with a seven digit challenge and waits for a response. This challenge is entered into the Passport device which combines it with seed information producing a seven digit response. The user then enters this response to the host machine which allows him to proceed if the challenge response is equivalent to the one generated by the PFX A2000 system.

EVALUATION SUMMARY:

The PFX A2000 and A2100 were evaluated by the National Computer Security Center under the Center's Computer Security Sub-System evaluation program. Since they were a security sub-system, rather than a complete computer system, they were not evaluated against an entire class in the *Department of Defense Trusted Computer System Evaluation Criteria*, dated 15 August 1983. Rather, they were assessed as to how well they performed User Authentication and Audit.

The evaluation team has determined that the PFX A2000 and A2100 provide a useful and effective user authentication mechanism. They can provide user authentication for computer systems lacking such a feature or, by using it in conjunction with an existing authentication mechanism, can enhance authentication assurance. A small number of host system subroutines must be written to facilitate communication between the host and the PFX A2000 server. Therefore, special care must be taken to ensure that the host system incorporates some security mechanism to restrict users from rerouting the requests from the host machine to the server.

	Serial No. CSC-EPL-87/001
EVALUATED PRODUCT:	Access Control Encryption (ACE) System
VENDOR:	Security Dynamics, Inc.
VERSIONS:	1986, 16 port hardware version
DATE:	31 March 1987

PRODUCT DESCRIPTION

The Security Dynamics' ACE system can be an effective addition to security in a wide variety of computer environments. ACE is an integrated hardware/software package which provides user identification and authentication (I&A), trusted path to host, and audit on I&A mechanisms for a host computer system. It is comprised of two distinct components. The first, the Access Control Module (ACM), is a stand-alone device that is installed such that all communication channels to the host system must pass through its protection mechanisms. ACE's stand-alone design provides basic security mechanisms to computer systems that implement no security mechanisms of their own. The second component is the SecurID card which every user must possess in order to identify himself to the ACM.

EVALUATION SUMMARY:

The ACE system has been evaluated by the National Computer Security Center (NCSC) under the Computer Security Sub-system evaluation program. Since ACE is considered to be a security sub-system rather than being a complete computer system, it was evaluated against a relevant subset of the requirements from the *Department of Defense Trusted Computer System Evaluation Criteria*, dated 26 December 1985. The subset for this product includes I&A, trusted path, and audit for I&A. The NCSC evaluation team has determined that the ACE system, when configured as tested, does effectively implement these mechanisms. This product maintains I&A by denying access to the host system until the user has provided a correct passcode. The ACE system provides trusted path by effectively identifying itself to the user before requiring any authentication data to be input. All attempts to access the ACM, or the host via the ACM, are audited by the ACE system. The ACE audit reports are complete and detailed.

Serial No. **CSC-EPL-87/002**

EVALUATED PRODUCT: SafeWord UNIX-Safe

VENDOR: Enigma Logic, Inc.

VERSION: 3.1

DATE: 30 June 1987

PRODUCT DESCRIPTION

SafeWord UNIX-Safe (SafeWord) is a software package which, when running under the XENIX operating system, provides an Identification and Authentication (I&A) mechanism for users, and auditing of this mechanism (audit). The security mechanisms can be used either independently or as supplements to those already provided by the underlying operating system. The I&A mechanism requires that each user first provide a user identifier (ID). This ID is used by SafeWord to generate a challenge for the user. The user must first enter his personal identification number and then the challenge into a small, hand-held pseudo-random number-generating device. In return, the hand-held device generates a response with which the user may then complete the login sequence to the host system.

EVALUATION SUMMARY:

SafeWord UNIX-Safe has been evaluated by the National Computer Security Center (NCSC) under the Computer Security Sub-system evaluation program. Since SafeWord is considered to be a security sub-system rather than a complete trusted computer system, it was evaluated against a relevant subset of the requirements in the *Department of Defense Trusted Computer System Evaluation Criteria*, dated December 1985. The subset for this product includes I&A and audit for the I&A.

The NCSC evaluation team has determined that SafeWord, when configured as tested, does effectively implement these mechanisms. This product maintains I&A by denying access to the host system until the user has provided an appropriate ID and the correct response to the subsequently issued challenge. All attempts to log in to the system are audited by SafeWord. The audit reports are complete and detailed.

	Serial No. **CSC-EPL-87/004**
EVALUATED PRODUCT:	Sentinel Security System
VENDOR:	Computer Security Corporation
VERSIONS:	3.13
DATE:	13 July 1987

PRODUCT DESCRIPTION

Triad Plus is an add-on security product which, when implemented on any IBM PC/XT or PC/AT configured as tested, provides user Identification and Authorization (I&A), Discretionary Access Control (DAC) on objects, DAC on system resources (RAC), Object Reuse, and Audit mechanisms. Once a user has logged onto the workstation, these mechanisms are essentially transparent. Unless the user attempts to exceed his defined privileges, the only noticeable difference is a slight degradation in workstation performance.

Triad Plus is comprised of an expansion board, personal identification tokens, and some supporting software utilities. The expansion board itself provides all of the security mechanisms. These mechanisms are used in conjunction with a personal identification token which is used to provide a physical element in the authentication process. The software utilities are provided for the convenience of users. However, some utilities are privileged; only a workstation administrator may use them.

Triad Plus uses an intricate memory management scheme, referred to as the Controlled Access Mechanism (CAM), to protect the resources on its expansion board. The CAM disallows random access to the information on the board by only allowing access through specific controlled entry points within the workstation's address space.

EVALUATION SUMMARY:

Triad Plus has been evaluated by the National Computer Security Center (NCSC) under the Computer Security Sub-system evaluation program. Since Triad Plus is considered to be a security sub-system rather than a complete trusted computer system, it was evaluated against a relevant subset of the requirements in the *Department of Defense Trusted Computer System Evaluation Criteria* (TCSEC), dated December 1985. The subset for this product includes I&A, DAC, Object Reuse, and Audit. In addition to the TCSEC features, Triad Plus was found to effectively implement a technology, referred to as the CAM.

The NCSC evaluation team has determined that Triad Plus is capable of applying these security features to any IBM PC/XT OR PC/AT. Users are required to properly identify and authenticate themselves before any access to the workstation is allowed and, after being properly authenticated, workstation activity is controlled and monitored by the Triad Plus expansion board.

Serial No. **CSC-EPL-87/008**

EVALUATED PRODUCT: SureKey

VENDOR: Key Concepts, Inc.

DATE: 4 September 1987

PRODUCT DESCRIPTION

SureKey is a user authentication mechanism for use with the IBM PC/XT series computers. The SureKey system consists of a plug-in card which is inserted into the BASIC ROM socket on a mother board of an IBM PC/XT (i.e., it does not occupy a bus expansion slot). SureKey authenticates potential users by requiring each user to enter a valid password prior to granting access to the system. The SureKey administrator, after password authentication, can assign the system administrator password and up to five user passwords through the use of administrator menus. These passwords are from three to eight alpha-numeric characters. SureKey also provides a method with which an authenticated user can lock the system keyboard.

EVALUATION SUMMARY:

The SureKey system has been evaluated by the National Computer Security Center (NCSC) under the Computer Security Subsystem evaluation program. Since SureKey is considered to be a security subsystem rather than being a complete computer system, it was evaluated against a relevant subset of the requirements from the *Department of Defense Trusted Computer System Evaluation Criteria* (Criteria), date December 1985. SureKey was assessed as to how well it performs user authentication. The evaluation team has determined that the SureKey system, when configured as tested, provides some user authentication for an IBM PC/XT. The SureKey system does not fully implement the identification and authentication requirement as stated in the Criteria, in that it only authenticates a user but does not perform user identification.

	Serial No. CSC-EPL-88/001
EVALUATED PRODUCT:	IDX-50
VENDOR:	IDENTIX Corporation
VERSIONS:	Version 7
DATE:	1 February 1988

PRODUCT DESCRIPTION

IDX-50 is a security product which uses biometrics to provide user authentication to a host computer. IDX-50 supplies the information based on a comparison made between a user's fingerprint and a record, stored on a smart card, which represents the user's fingerprint. The result of this comparison (either confirmed or denied) is sent to the host system. The IDX-50 is comprised of a stand-alone terminal and a smart card for every user of the system.

EVALUATION SUMMARY:

IDX-50 is a security product which uses biometrics to provide user authentication to a host computer. IDX-50 supplies the information based on a comparison made between a user's fingerprint and a record, stored on a smart card, which represents the user's fingerprint. The result of this comparison (either confirmed or denied) is sent to the host system. The IDX-50 is comprised of a stand-alone terminal and a smart card for every user of the system. IDX-50 Version 7 has been evaluated by the National Computer Security Center (NCSC) under the Computer Security Sub-system evaluation program. IDX-50 is considered to be a security sub-system rather than a complete trusted computer system. Therefore, it was evaluated against a relevant subset of the requirements in the *Department of Defense Trusted Computer System Evaluation Criteria*, dated December 1985. Specifically, the features included in this evaluation were Identification and Authentication (I&A) and audit of the I&A.

The NCSC evaluation team has determined that the IDX-50 can apply these features to any host system which provides the ability to accept I&A information from the IDX-50 terminal. The host must be able to make access decision based on the information. The host software which provides these features must be protected from modification by users. The IDX-50 does not include any host software.

Serial No. **CSC-EPL-88/002**

EVALUATED PRODUCT: Cortana Personal Computer Security System

VENDOR: Cortana Systems Corporation

VERSION: 1.21

DATE: 18 February 1988

PRODUCT DESCRIPTION

The Cortana Systems Corporation, Cortana Personal Computer Security System Version 1.21 is an IBM PC/XT, PC/AT, and compatible hardware and software package which provides user access control to programs and files (Discretionary Access Control), user logon procedures (Identification and Authentication), user auditing (Audit), and secure reallocation of memory (Object Reuse). In addition to these highly desirable security features, the Cortana Personal Computer Security System also provides protection against unauthorized DOS function and procedure calls.

EVALUATION SUMMARY:

The Cortana Personal Computer Security System product has been evaluated against the user identification and authentication, discretionary access control, object reuse, and audit requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria*, dated December 1985. The National Computer Security Center (NCSC) evaluation team has determined that the Cortana Personal Computer Security System, when configured as tested, may implement these mechanisms.

This product maintains user identification and authentication by requiring each user to enter a proper user ID and password before gaining access to the computer. It also mediates access between users and protected files. Users are only allowed to access (i.e., read, write, delete) those files for which access permissions have been specifically granted by the System Administrator. In the process of mediating user access, this product maintains an audit record of user actions (e.g., user attempts to access protected files - both successes and failures, user logon, user logoff, etc.). It also modifies the last user work space, such that the next user will not be able to recover any of the first user's data.

The evaluation team has determined that these security features can be maintained only if the general user is prevented from modifying the system operating code. Therefore, the System Administrator must ensure that the application programs run by the users do not allow direct access to the IBM BIOS (e.g., programs which can be used to modify system code, compilers, assemblers, etc.).

	Serial No.	**CSC-EPL-88/004**
EVALUATED PRODUCT:	DPS-800/12	
VENDOR:	Spectrum Manufacturing Inc.	
DATE:	2 MAY 1988	

PRODUCT DESCRIPTION

This product is intended to provide protection for computer systems with RS-232 communication ports. The product consists of a DPS-800/12 unit and optional UV-1's for users. The DPS-800/12 connects between the host and its modems.

Without UV-1's, users can gain access to the host system by entering their DPS-800/12 passwords. At which point, the host's own logon sequence may be executed.

When the optional UV-1's are included in the configured system, users connect the unit between their terminal and external modem. Depending on the type of UV-1, the DPS-800/12 will operate in either an asynchronous or synchronous mode. In the asynchronous mode, users enter a password and after it is verified, a control sequence is generated by the UV-1 before access will be granted to the host system. In the synchronous mode, only the control sequence is required to gain access. The DPS-800/12 also provides auditing capabilities.

EVALUATION SUMMARY:

The DPS-800/12 is a considered to be a sub-system rather than a trusted computer system; therefore it was evaluated against a relevant subset of the requirements from the *Department of Defense Trusted Computer System Evaluation Criteria* (TCSEC). The subset of the TCSEC that applies to DPS-800/12 included Identification & Authentication and audit.

The DPS-800/12 provides some security functionality when operating in the asynchronous mode. In this mode, it was determined that the DPS-800/12 was able to identify and authenticate users prior to giving them access to a host system. All additional features (e.g. port and time restrictions) performed as claimed.

The synchronous mode of operation was not evaluated since this mode failed to meet the minimum requirements of the TCSEC for I&A.

The DPS-800/12 recorded auditable events as claimed. However, proper administration of passwords is required to maintain individual accountability because multiple passwords can be assigned to the same UV-1 and its identifying serial number appears in the audit log.

	Serial No. CSC-EPL-88/005
EVALUATED PRODUCT:	DIALBACK
VENDOR:	Clyde Digital Systems
VERSION:	1.5
DATE:	29 August 1988

PRODUCT DESCRIPTION

The Clyde Digital Systems, DIALBACK, Version 1.5 is an add-on security product which is designed to provide user authentication for any VAX/VMS system by providing the capability to redial users at their pre-assigned telephone number. It consists of several software utilities that are designed to provide the security mechanisms. These utilities attempt to provide the ability to control dial-in lines and include database management utilities that configure the product. When DIALBACK is installed, these utilities are copied to the VMS system. Once there, they must be protected through the use of VMS security mechanisms.

EVALUATION SUMMARY:

Since DIALBACK is a security sub-system rather than a complete system, it was not evaluated against an entire class in the *Department of Defense Trusted Computer System Evaluation Criteria*, dated December 1985. Rather, it was assessed as to how well it performs user authentication and audit of dial-in events.

The evaluation team has determined that DIALBACK is a useful, effective authentication mechanism when configured as specified in the evaluation report and "Appendix A" of the DIALBACK Reference Manual.

Precaution must be taken in the administration of call-back security systems because they rely on the proper operation of generally unsecure telephone systems. Administrators of call-back security systems must therefore take great care in setting up such a system so that they do not create a situation that instills a false sense of security. The DIALBACK documentation, specifically "Appendix A", does an excellent job of pointing out the necessary precautions that must be taken in order to secure such a system.

	Serial No. **CSC-EPL-88/006**
EVALUATED PRODUCT:	Citadel Security Subsystem
VENDOR:	Computer Security Corporation
VERSION:	4.0
DATE:	August 30, 1988

PRODUCT DESCRIPTION

Citadel is a software security product that provides additional protection to the IBM PC (XT and AT) and fully compatible machines. Citadel provides Identification and Authentication (I&A) mechanisms, Discretionary Access Control (DAC) of files, and an Audit Trail to maintain a record of users and their actions. I&A consists of a user entering a valid ID and a corresponding password. The user is capable of changing this password should he desire to and the Central Administrator (CA) can mandate the length of time that the password remains valid. DAC allows the CA to control who has access to what files. The audit trail contains a record of illegal login attempts, file accesses, changes to passwords, etc. This version was installed and tested on an IBM AT, whereas the previous version was tested on an IBM XT.

EVALUATION SUMMARY:

Citadel, being a subsystem rather than a full computer system, can not be given a rating according to the *Department of Defense Trusted Computer System Evaluation Criteria* (Criteria), and can only be evaluated on a relevant subset of the requirements for the trusted computer system. The I&A functioned properly requiring a user ID and a valid password. Also, the system crashed when five consecutive illegal password attempts were made. The Discretionary Access Control functioned properly also in that the CA could set protection on files and assign access rights to certain users. These files were protected through file groups and/or departments. If the user had access to the given file group or department, then he/she could obtain the files within these groups. The audit log functioned properly in that file access attempts, illegal login attempts, and changes to passwords are recorded. These entries consist of the user name and number, and in the case of file access attempts, the file group and/or the department number. This file, the audit file, is a hidden file and therefore can't be tampered with by users. The CA should clean up the file when the need arises.

	Serial No. CSC-EPL-88/007
EVALUATED PRODUCT:	Private Access
VENDOR:	Computer Accessories, Inc.
VERSION EVALUATED:	Model L20
DATE:	June 7, 1988

PRODUCT DESCRIPTION

Private Access is a stand-alone device whose security mechanisms protect against electronic tampering as long as the system passwords remain guarded. This product provides the remote user of a single-state host microprocessor with Identification and Authentication (I&A), an audit of I&A, various time of access capabilities and a limited amount of access to the host computer. Greater remote access can be gained by use of software packages which are not provided by the vendor. Up to 100 different user ID/password combinations can be utilized. The company provides a very thorough operator's manual which describes the security administrator and standard user's capabilities.

EVALUATION SUMMARY:

Private Access Model L20 has been evaluated by the National Computer Security Center (NCSC). Private Access is considered to be a security sub-system, rather than a complete trusted computer system. It was evaluated against the relevant subset of the security requirements in the *Department Of Defense Trusted Computer System Evaluation Criteria*, dated December 1985. The subset used for this product consisted of identification and authentication (I&A).

The NCSC evaluation team has determined that Private Access, Model L20 when connected between a modem and a host Personal Computer by RS-232C configured cables performs I&A and audit of I&A for the remote host.

Overall, Private Access can protect one Personal Computer from unauthorized access over a single telephone line. However, because this is a sub-system, it is not capable of protecting information with such assurance that classified information may be maintained on a system protected only by this system. Neither may Private Access be used to upgrade the protection offered by other complete security systems for the sole purpose of adding the ability to store or process classified material. Private Access may be added on to other protection devices to add another layer of security but in no way may be used as justification for processing classified material.

	Serial No.	**CSC-EPL-88/008**
EVALUATED PRODUCT:	X-LOCK 50	
VENDOR:	Infosafe Corporation	
VERSION:	2.00	
DATE:	12 September 1988	

PRODUCT DESCRIPTION

X-LOCK 50 is an add-on security product which, when implemented on any IBM PC/XT or PC/AT configured as tested, provides user Identification and Authorization (I&A), a limited form of Discretionary Access Control (DAC), and a limited form of Object Reuse (OR). Once a user has logged onto the workstation, these mechanisms are essentially transparent. If the user attempts to exceed his defined privileges, the request for additional privileges will be denied.

X-LOCK 50 is comprised of an expansion board, some supporting software utilities, and an external cover lock. The expansion board includes the firmware which controls access to the computer and its disk drive resources, and the necessary hardware to store account and system information. The software provides programs which perform account management, and secure information erasure, and other additional functions.

EVALUATION SUMMARY:

X-LOCK 50 has been evaluated by the National Computer Security Center (NCSC). X-LOCK 50 is considered to be a security sub-system rather than a complete trusted computer system. Therefore it was evaluated against a relevant subset of the requirements from the *Department of Defense Trusted Computer System Evaluation Criteria* (TCSEC), dated December 1985. The features included in this evaluation where Identification and Authentication, a limited form of Discretionary Acess Control, and a limited form of Object Reuse.

The NCSC evaluation team has determined that X-LOCK 50, when configured as tested is capable of applying these security features on an IBM PC/XT and a PC/AT. I&A is maintained on the protected computer by requiring that users enter a valid user identification (ID) and password prior to gaining access to the system. The discretionary access control is implemented on a limited scale by allowing or denying an individual user access to the system or hard disk. Privileges assigned to users are determined by the superuser, (the system security administrator) when user accounts are being established. Object reuse, which is implemented at the user's discretion, only writes over specified files and does not take into consideration other locations (e.g., memory buffers) which could contain residual data.

	Serial No.	**CSC-EPL-89/002**
EVALUATED PRODUCT:	INX 4400/USM	
VENDOR:	Infotron	
VERSION:	12A.2	
DATE:	6 June 1989	
OVERALL EVALUATION CLASS:	I & A / D	

PRODUCT DESCRIPTION

The Infotron Intelligent Network Exchange with the User Security Module option (INX4400/USM) is a high capacity digital data switching system (front-end connection switch) that handles asynchronous and synchronous data transmissions. It uses distributed logic and master-slave hierarchy to transfer data and contol signals between devices that interface with the INX4400/USM. The INX4400/USM interfaces conform to EIA RS232C (CCITT V.24/V.28), and CCITT V.11 and V.35 standards. The INX4400/USM can include up to 4000 I/O interfaces and can consist of 64 nodes. Because the USM solely interacts with asyncronous devices, this evaluation only addresses asynchronous data transmissions.

The INX4400/USM system software is a menu driven program executing from dual micro floppy drive. The program controls channel configuration, provides security features for access to the system console, provides access to the various menus, monitors selected events, and enables the USM. The USM is a security option of the INX4400. It allows an administrator to assign ID's, passwords, and Destinations Access Group (DAG) codes to users. This option, in conjunction with the system software, provides the Identification and Authentication (I&A).

EVALUATION SUMMARY:

The security protection provided by the INX4400/USM described in the INX4400 Operation Manual (part number 950067, dated February 1988) has been evaluated by the National Computer Security Center (NCSC). The security features of the INX4400/USM were evaluated against the requirements specified by the *Computer Security Subsystem Interpretation* of the *DoD Trusted Computer System Evaluation Criteria* (CSSI) dated September 1988.

An I&A subsystem requires users to identify themselves to it before they perform any actions. A subsystem rated as an I&A/D2 system must provide a unique identity for each individual user and the authentication needed to provide accountability for controlled access to the protected system, export user identification to the protected system (host), and an auditing mechanism to log security relevant I&A events.

The INX4400/USM does provide individual user I&A and an event log, but the INX4400/USM does not export any user identification to the host(s).

The INX4400/USM meets several I&A/D1 requirements, but a product must meet all the requirements of a given class to be given that class rating. Consequently, the INX4400/USM receives a I&A/D rating.

	Serial No. CSC-EPL-89/006
EVALUATED PRODUCT:	Tigersafe
VENDOR:	The ALC Group
VERSION:	3.03.1
EVALUATION DATE:	21 September 1989
OVERALL EVALUATION CLASS:	I&A / D OR / D

PRODUCT DESCRIPTION

The Tigersafe is a hardware board and software combination that does Identification & Authentication and Object Reuse. The user plugs the hardware board into any 16 bit slot on the IBM PC/XT/AT or compatible and installs the software utilities with the provided installation program. The board asserts control, once loaded, by modifying the interrupt vector table. Tigersafe invokes its own code that controls the terminal and keyboard. The net result is a password banner to which all users must correctly respond to access the utilities of the machine.

The software utilities provide functional control of the Tigersafe environment along with object reuse and minimal auditing. Tigersafe provides Master Administrator utilities that customize the Tigersafe system parameters, initialize users, and set passwords. Additionally, the Master Utilities manage user access to the hardware resources (hard disk, disk drive, parallel port, serial port, communications port, etc.), and configuration of the audit tool. Usage of the Master Administrator utilities requires an additional authentication step. There are other utilities for users that allow them to change their password, to customize the banner and to invoke the password banner during normal operation, all with authorization checking and optional audit.

EVALUATION SUMMARY:

The National Computer Security Center (NCSC) evaluated the security protection provided by the Tigersafe against the requirements specified by the *Computer Security Subsystem Interpretation* of the *DoD Trusted Computer System Evaluation Criteria* (CSSI) dated September 1988.

An I&A subsystem requires users to identify themselves to it before they do anything on the system. A subsystem rated as an I&A/D2 system must provide a unique identifer and authenticator for each user. Additionally, it must use those items to control access to the protected system, export user identification to the protected system (host), and must provide an auditing mechanism to log security relevant I&A events.

The Tigersafe does provide individual user I&A and an event log and exports user identification to the host. Tigersafe currently does not meet the documentation requirements of I&A/D2 and Object Reuse/D2.

The Tigersafe meets several I&A/D2 requirements, but products must meet all the requirements of a given class to receive that class rating. Therefore, the Tigersafe receives a I&A/D and Object Reuse/D rating.

For a complete description of how the Tigersafe system satisfies each requirement of the CSSI, see *Final Evaluation Report, ALC Tigersafe* (Report No. CSC-EPL-89/006).

	Serial No.	**CSC-EPL-89/007**
EVALUATED PRODUCT:	TriSpan	
VENDOR:	Micronyx	
VERSION:	1.1230	
EVALUATION DATE:	29 September 1989	
OVERALL EVALUATION CLASS:	I&A / D DAC / D AUD / D	

PRODUCT DESCRIPTION

TriSpan is one of a family of security products from Micronyx. These products manage and control access to the IBM PC/XT/AT. The product consists of a hardware card, electronic key-ringed sized tokens, administrative and user documentation, and application software to implement its security features. Once installed, TriSpan provides some degree of I&A functionality. The degree of DAC and audit that TriSpan provides may also be acceptable for some installations.

EVALUATION SUMMARY:

The National Computer Security Center (NCSC) has evaluated the security protection provided by TriSpan. The security features for DAC, Audit, and I&A of TriSpan were evaluated against requirements of the *Computer Security Subsystem Interpretation* of the *DoD Trusted Computer System Evaluation Criteria* (CSSI), dated September 1988.

TriSpan does not satisfy the assurance and documentation requirements mandated by the CSSI for an I&A, DAC, and Audit component subsystem. TriSpan therefore receives a CSSI D rating in each of these components.

An I&A subsystem requires users to identify themselves to it before they do anything on the system. A subsystem rated as an I&A/D2 system must provide a unique identifer and authenticator for each user. Additionally, it must use those items to control access to the protected system, export user identification to the protected system (host), and must provide an auditing mechanism to log security relevant I&A events. TriSpan satisfies the CSSI functional feature requirement for I&A/D2. However, since it does not meet the assurance and documentation requirements for I&A / D2, it fails to meet all of the I&A / D2 requrements, and consequently receives an I&A D rating.

A DAC subsystem provides user-specified, controlled sharing of resources. Security policies establish the rules which determine whether access can be granted. A subsystem rated at DAC/D fails to meet all the requirements of a higher CSSI class. TriSpan fails to meet a higher CSSI feature class because it does not mediate all access attempts to objects.

An auditing subsystem must be capable of recording all security relevant actions. An audit subsystem with D2 features must be able to integrate into the mechanisms that mediate access and perform user I&A. It must always be invoked, and must be tamperproof. TriSpan fails to meet a CSSI feature class greater than D because non-priveleged users can destroy a significant amount of audit data.

For a complete description of how TriSpan satisfies each requirement of the CSSI, see *Final Evaluation Report, Micronyx TriSpan* (Report No. CSC-EPL-89/007).

	Serial No. CSC-EPL-89/008
EVALUATED PRODUCT:	MicroControl
VENDOR:	Wang Laboratories, Inc.
VERSION:	MicroControl version 1.0650 MicroControl Tempest version 1.0660
EVALUATION DATE:	9 October 1989
OVERALL EVALUATION CLASS:	I&A / D DAC / D AUD / D

PRODUCT DESCRIPTION

MicroControl is a product from Wang Laboratories used to manage and control access to a workstation, the WANG Professional Computer 200/300 series. Version 1.0650 consists of a hardware card, electronic key-sized tokens, administrative and user documentation, and version specific software to implement its security features. Version 1.0660 consists of similar components, except it does not support the token I&A process. Version 1.0660 also has updated documentation. Once installed, MicroControl provides some degree of I&A functionality.

EVALUATION SUMMARY:

The National Computer Security Center (NCSC) has evaluated the security protection provided by MicroControl against the *Computer Security Sub-System Interpretation* of the *DOD Trusted Computer Systems Evaluation Criteria* (CSSI) dated September 1988.

MicroControl does not satisfy the assurance and documentation requirements mandated by the CSSI for an I&A, DAC, and Audit component subsystem. MicroControl therefore receives a CSSI D rating in each of these components.

An I&A subsystem requires users to identify themselves to it before they do anything on the system. A subsystem rated as an I&A/D2 system must provide a unique identifer and authenticator for each user. Additionally, it must use those items to control access to the protected system, export user identification to the protected system (host), and must provide an auditing mechanism to log security relevant I&A events. MicroControl satisfies the CSSI functional feature requirement for I&A/D2. However, since it does not meet the assurance and documentation requirements for I&A / D2, it fails to meet all of the I&A / D2 requrements, and consequently receives an I&A D rating.

A DAC subsystem provides user-specified, controlled sharing of resources. Security policies establish the set of rules that MicroControl uses to grant or deny access. A subsystem rated at DAC/D fails to meet all the requirements of a higher CSSI class. MicroControl fails to meet a higher CSSI feature class because it does not mediate all access attempts to objects.

An auditing subsystem must be capable of recording all security relevant actions. An auditing subsystem must be able to integrate into the mechanisms that mediate access and perform user I&A. It must always be invoked, and must be tamperproof. MicroControl fails to meet a CSSI feature class greater than D because non-privileged users can destroy significant amount of audit data.

For a complete description of how MicroControl satisfies each requirement of the CSSI, see *Final Evaluation Report, Wang Laboratories MicroControl* (Report No. CSC-EPL-89/008).

	Serial No. CSC-EPL-89/009
EVALUATED PRODUCT:	PC/DACS
VENDOR:	Pyramid Development Corp.
VERSION:	Release 2.0
EVALUATION DATE:	28 September 1989
OVERALL EVALUATION CLASS:	DAC / D I&A / D OR / D AUD / D

PRODUCT DESCRIPTION

PC/DACS is a software package which operates on an IBM PC, PC/XT, PC/AT, or 100random access memory running MS-DOS or PC-DOS 2.0 or greater. The system is required to also have at least one floppy disk drive, a hard disk drive and a monitor. This package adds Identification and Authentication (I&A), Discretionary Access Control (DAC), Object Reuse and Audit features to the DOS operating system.

This product provides protection of the following system objects - ports, floppy drives, and files (including directory and drive). The subjects are defined as users and administrators. Administrators are the only privileged subjects and all administrators are equally privileged. A subject must first logon to the system before being allowed to boot or use the system.

The team noted that the system clock which is used by Audit for timestamp information is not protected from being changed by any user. The team feels this is a problem which should be addressed in the next release of the product.

EVALUATION SUMMARY:

The National Computer Security Center has evaluated PC/DACS against the requirements of the *Computer Security Subsystem Interpretation* of the *DoD Trusted Computer System Evaluation Criteria* (CSSI) dated September 1988. The PC/DACS implements all four features available to subsystems. They are Discretionary Access Control (DAC), Object Reuse, Identification and Authentication (I&A), and Audit. The team analyzed the requirements for each level (D1, D2, and D3) and identified the highest level in which the subsystem meets each feature.

The CSSI requires that the subsystems' domain must be protected. PC/DACS is a security product that runs under operating systems using only a single-state microprocessor. (It runs on microprocessors that have multiple-states but does not use the multiple-states).

Since DOS does not provide this protection, PC/DACS cannot receive a rating greater than D for any feature; although this product offers some advanced features such as:

- Automatic logoff after a prescribed idle period,
- Subject's access to objects is determined by his user rights or by a project's rights in which he is a member,
- BIOS level control of resources so that the subject cannot see directories or files in which they have no access.

Therefore PC/DACS has been rated as a DAC/D, I&A/D, Object Reuse/D and Audit/D subsystem.

For a complete description of how PC/DACS satisfies each requirement pf the CSSI, see *Final Evaluation Report, Pyramid PC/DACS* (Report No. CSC-EPL-89/009).

	Serial No. CSC-EPL-89/010
EVALUATED PRODUCT:	ONGUARD 4.10
VENDOR:	EXE Software Inc.
VERSION:	ONGUARD 4.10 PRIVACY PLUS 3.01 MASTERKEY 3.01
EVALUATION DATE:	September 29, 1989
OVERALL EVALUATION CLASS:	I&A / D1 DAC / D1

PRODUCT DESCRIPTION

ONGUARD 4.10 is a microcomputer software package that operates on an IBM PC, PC/XT, PC/AT, or 100MS-DOS or PC-DOS. The product is a combination of three packages, each of which is also sold separately, and allows as many as 24 users to share a system, one at a time. The package provides a clear user interface, a manual for the System Manager, and a User's manual.

EVALUATION SUMMARY:

The National Computer Security Center (NCSC) has evaluated the security protection provided by ONGUARD 4.10. The security features for DAC and I&A were evaluated against the *Computer Security Subsystem Interpretation* of the *DoD Trusted Computer Security Evaluation Criteria* (CSSI), dated September 1988.

ONGUARD 4.10 is a subsystem which provides Identification and Authentication, Discretionary Access Control, Object Reuse, and Auditing. Access control is performed using a user/file matrix.

Object reuse is not done automatically and so is unrated.

The System Administrator is not consistently audited so Audit is unrated. ONGUARD provides a set of anti-tampering checks which can be enabled through ONGUARD's configuration file. These anti-tampering checks provide D1 level of assurance that the ONGUARD controls cannot be bypassed. Therefore ONGUARD receives a I&A/D1 and DAC D1 rating.

For a complete description of how ONGUARD satisfies each requirement of the CSSI, see *Final Evaluation Report, United Software Security ONGUARD* (Report No. CSC-EPL-89/010).

	Serial No.	**CSC-EPL-90/005**
EVALUATED PRODUCT:	Tigersafe	
VENDOR:	The ALC Group	
VERSION:	3.03.1 EN	
EVALUATION DATE:	26 September 1990	
OVERALL EVALUATION CLASS:	I&A / D OR / D	

PRODUCT DESCRIPTION

The Tigersafe is a hardware/software combination that provides Identification & Authentication and Object Reuse functionality. This version of the product was evaluated on a Zenith model 248 and includes features to control access to the Zenith ROM Monitor and Setup utilities. The user plugs the circuit board into any 16 bit slot and installs the software utilities with the provided installation program. The board asserts control as the system is booted by modifying the interrupt vector table.

Tigersafe invokes its own code that controls the terminal and keyboard. The net result is a password banner to which all users must correctly respond to use the machine. The software utilities provide functional control of the Tigersafe environment along with object reuse. Tigersafe provides Master Administrator utilities that customize the Tigersafe system parameters, initialize users, and set passwords. The utilities also manage user access to the hardware resources (hard disk, disk drive, parallel port, serial port, communications port, etc.), audit configuration utility, and system setup (ROM Monitor). Usage of the Master Administrator utilities requires an additional authentication step. There are other utilities for users that allow them to change their password and invoke the password banner during normal operation, all with authorization checking and optional audit.

EVALUATION SUMMARY:

The security protection provided by the Tigersafe has been evaluated against the requirements specified by the *Computer Security Subsystem Interpretation* of the *DoD Trusted Computer System Evaluation Criteria* (CSSI) dated September 1988.

An I&A subsystem requires users to identify themselves to it before they do anything on the system. A subsystem rated as an I&A/D2 system must provide a unique identifier and authenticator for each user. Additionally, it must use those items to control access to the protected system, export user identification to the protected system (host), and must provide an auditing mechanism to log security relevant I&A events.

The Tigersafe provides individual user I&A and an event log and exports user identification to the host, and therefore satisfies the functional requirement for I&A/D2. The Tigersafe also satisfies the functional requirement for OR/D2. The Tigersafe was not evaluated against the Discretionary Access Control or Audit requirements of the CSSI.

In addition to meeting the functionality requirements and interpretations defined in the CSSI, subsystems must also meet the assurance and documentation requirements. The Tigersafe failed to satisfy the assurance and doumentation requirements, and therefore receives I&A/D and Object Reuse/D ratings. For a complete description of how the Tigersafe system satisfies each requirement of the CSSI, see *Final Evaluation Report, ALC Tigersafe* (Report No. CSC-EPL-90/005).

	Serial No. **CSC-EPL-90/006**
EVALUATED PRODUCT:	Eyedentify Information Security System (EIS)
VENDOR:	Eyedentify Incorporated
VERSIONS:	7.5 Remote System REV. 05-25-90
EVALUATION DATE:	24 September 1990
OVERALL EVALUATION CLASS:	I & A / D1

PRODUCT DESCRIPTION

The Eyedentify Information Security (EIS) System is an authentication mechanism for use with computer systems that either lack a user authentication capability or require additional authentication assurance. The EIS System is a biometric system employing retinal identification technology to quickly and easily verify a person's identity. Before using the EIS System for identification and authentication, users must have an eye signature reference template created and stored on the host computer. This is done by taking a series of eye readings and storing them as a 40-byte eye signature.

After users are enrolled, the EIS System is used to verify a person's identity. This is done by entering a unique personal identification number (PIN) via a keyboard and submitting to an eye scan at the EIS System. The reading is compared with the eye signature associated with that PIN. If there is a match, the user has been identified and authenticated.

It is the responsibility of the customer to protect the host database where eye signatures are stored and to provide the software necessary for communication between the host and EIS System.

EVALUATION SUMMARY:

The National Computer Security Center (NCSC) evaluated the security protection provided by EIS against the requirements specified by the *Computer Security Subsystem Interpretation* of the *DoD Trusted Computer System Evaluation Criteria* (CSSI) dated September 1988.

An I&A subsystem requires users to identify themselves to it before they do anything on the system. A subsystem rated as an I&A/D1 system must provide a unique identifier and authenticator for each user. Additionally, it must use those items to control access to the protected system and to export user identification to the protected system (host).

The NCSC evaluation team has determined that the EIS System, when configured as tested, does effectively implement this mechanism. This product maintains I&A by verifying a user's identity. The EIS System satisfies the functional requirement for I&A/D1, and also satisfies the assurance and documentation requirements. Therefore, the EIS System receives an I&A D1 rating. It is the responsibility of the customer to properly integrate the EIS System with their host computer/system to ensure unauthorized access is not allowed.

For a complete description of how EIS satisfies the I&A requirement of the CSSI, see *Final Evaluation Report, Eyedentify Incorporated EIS*, (Report No. CSC-EPL-90/006)

	Serial No. **CSC-EPL-90/007**
EVALUATED PRODUCT:	WATCHDOG
VENDOR:	Fischer International Systems Corporation
VERSION:	Watchdog PC Data Security version 5.2.2 Watchdog Armor version 1.1.0
EVALUATION DATE:	28 September 1990
OVERALL EVALUATION CLASS:	I&A / D2 DAC / D AUD / D2 OR / D

PRODUCT DESCRIPTION

Watchdog is a combination of two products provided by Fischer International Systems Corporation. Watchdog PC Data Security version 5.2.2 is a software package, while Watchdog Armor version 1.1.0 is a small plug-in hardware board. This product operates on a IBM PC, PC/XT, or PC/AT microcomputer with 640K of RAM operating under MS-DOS or PC DOS versions 2.0 or higher.

Watchdog adds Identification and Authentication (I&A), Discretionary Access Control (DAC), Audit (AUD), and Object Reuse (OR) features to the DOS operating system.

EVALUATION SUMMARY:

The National Computer Security Center (NCSC) evaluated the security protection provided by Watchdog against the requirements specified by the *Computer Security Subsystem Interpretation* of the *DoD Trusted Computer System Evaluation Criteria* (CSSI) dated September 1988.

An I&A subsystem requires users to identify themselves to it before they do anything on the system. A subsystem rated as an I&A/D2 system must provide a unique identifier and authenticator for each user. Additionally, it must use those items to control access to the protected system, export user identification to the protected system (host), and must provide an auditing mechanism to log security relevant I&A events. Watchdog does provide individual user I&A and an event log and exports user identification to the host. Therefore Watchdog has received an I&A/D2 rating.

A DAC subsystem provides user-specified, controlled sharing of resources. Security policies establish the rules which determine whether access can be granted. Watchdog meets all of these requirements, and has received a DAC/D2 rating.

An auditing subsystem must be capable of recording all security relevant actions. An audit subsystem with D2 features must be able to integrate into the mechanisms that mediate access and perform user I&A. It must always be invoked, and must be tamperproof. Watchdog records all security relevant actions and interfaces with the I&A and DAC mechanisms. Therefore Watchdog has received an AUD/D2 rating.

Watchdog overwrites file system objects upon deallocation, and clears memory objects at the end of a user's session for most, but not all memory objects. Since Watchdog fails to clear ALL memory objects, it does not satisfy the D2 requirement for Object Reuse.

For a complete description of how Watchdog satisfies each requirement of the CSSI, see *Final Evaluation Report, Fischer International Systems Corporation Watchdog Version 5.2.2* (Report No. CSC-EPL-90/007)

Serial No. CSC-EPL-91/001

EVALUATED PRODUCT:	LOCKIT Professional 2.10
VENDOR:	Security Microsystems, Inc.
VERSION :	LOCKIT Professional 2.10
EVALUATION DATE:	March 27, 1991
OVERALL EVALUATION CLASS:	I&A / D DAC / D AUD / D OR / D

PRODUCT DESCRIPTION

LOCKIT Professional 2.10 is a microcomputer hardware and software package that operates on an IBM PC, PC/XT, PC/AT, or 100compatible microcomputer under MS-DOS or PC-DOS. The product is a combination of a hardware board and a software package that allows many users to share a system, one at a time. The package provides a friendly user interface, a manual for the System Administrator, and a User's manual.

EVALUATION SUMMARY:

The Trusted Product Evaluations and Network Security Evaluations Division of the National Security Agency (NSA) has evaluated the security protection provided by LOCKIT Professional 2.10. The security features for Identification and Authentication, Discretionary Access Control, Audit, and Object Reuse were evaluated against the *Computer Security Subsystems Interpretation* (CSSI) of the *Trusted Computer Security Evaluation Criteria* (TCSEC).

LOCKIT Professional 2.10 is a subsystem which provides Identification and Authentication, Discretionary Access Control, Object Reuse, and Auditing. The user is confined within a menu driven environment which must not be exited if security is to be maintained. Identification and Authentication is accomplished within a separate domain before MS/PC-DOS is brought up.

Discretionary access control is obtained by defining a limited access area for each user and by providing access to that area only through that user's menu. Object reuse functionality for both memory resident objects and disk resident objects can be set up so that it is automatically invoked. Auditing capabilities are very limited. There are limited checks to determine if any part of LOCKIT Professional 2.10 was tampered with. LOCKIT Professional 2.10 receives a D rating in auditing because it does not meet all of the functional requirements for a higher rating.

In addition to meeting the functionality requirements defined in the CSSI, subsystems must also meet the assurance and documentation requirements. LOCKIT Professional failed to satisfy the assurance and documentation requirements, and therefore receives a composite rating of D for the Identification and Authentication, Object Reuse, and Discretionary Access Control features. For a complete description of how LOCKIT Professional satisfies each requirement of the CSSI, see *Final Evaluation Report, Security Microsystems, Inc. Lockit Professional* (Report No. CSC-EPL-91/001).

Serial No. **CSC-EPL-91/002**

EVALUATED PRODUCT: COMPSEC-II

VENDOR: American Computer Security Industries, Inc.

VERSION: COMPSEC-II USA American Version, release B3.1

EVALUATION DATE: 10 June 1991

OVERALL EVALUATION CLASS: I&A / D
AUD / D
DAC / D
OR / D

PRODUCT DESCRIPTION

COMPSEC-II is a combined hardware and software based product for use in microcomputers. The hardware base of COMPSEC-II consists of a hardware card that is inserted in an IBM-PC, IBM-XT, IBM-AT, 386-based machine, or a 1002.0 through 3.3. The software portion of the product is installed by running the installation utility provided with the system.

COMPSEC-II provides System Operator utilities to customize the system including initializing users and setting passwords, setting user access to the hardware resources (hard disk, external disk drive), setting user access to files and directories, configuring the audit utility, and activating object reuse. Use of the System Operator utilities requires an additional identification and authentication step.

EVALUATION SUMMARY:

The Trusted Product and Network Security Evaluations Division of the National Security Agency (NSA) has evaluated the security protection provided by COMPSEC-II. The security features for Identification and Authentication, Audit, Discretionary Access Control, and Object Reuse were evaluated against the requirements specified by the *Computer Security Subsystem Interpretation* (CSSI) of the *DoD Trusted Computer System Evaluation Criteria* (TCSEC).

An I&A subsystem requires users to identify themselves to it before they do anything on the system. A subsystem rated as an I&A/D2 system must provide a unique identifier and authenticator for each user and use those items to control access to system objects. Additionally, the subsystem must provide for audit logging of security relevant I&A events and protect the authentication data so that it cannot be accessed by any unauthorized user. COMPSEC-II requires individual users to identify themselves and authenticate their identity before they are allowed access to the system.

COMPSEC-II audits the occurrence of all security relevant I&A events. However, COMPSEC-II fails to sufficiently protect the authentication data from unauthorized access. An audit subsystem must be capable of recording all security relevant actions that occur on the system. The record of these events must be protected from modification or unauthorized access or destruction.

COMPSEC-II fails to audit the security relevant actions taken by the system administrator during the configuration and update of the System Operator utilities mentioned above in the Product Description. Additionally, COMPSEC-II fails to sufficiently protect the audit log data from unauthorized access.

A DAC/D2 subsystem uses the identification of subjects and objects to determine whether users are authorized for each access attempt. The DAC subsystem must provide the capability for users to specify how other users or groups may access the objects they control. Audit data must be generated that records access mediation events. Propagation of access rights must be limited to authorized users. The DAC mechanism must deny access to an object when no explicit action has been taken to allow access. If COMPSEC-II is configured for Master Exclusion Access Control as described in the vendor's operations manual, then COMPSEC-II satisfies the functional requirements for DAC at the D2 level.

An OR/D2 subsystem requires that all authorizations to the information contained within a storage object shall be revoked prior to assignment or allocation to a subject. COMPSEC-II overwrites file system objects upon deallocation and clears memory objects at the end of a user's session. COMPSEC-II satisfies the functional requirements for OR at the D2 level.

In addition to meeting the functional requirements, subsystems must also meet the assurance and documentation requirements of the CSSI. COMPSEC-II failed to satisfy the assurance and documentation requirements and therefore receives a composite rating of D for each of the four features that were evaluated. For a complete description of how the COMPSEC-II system satisfies each requirement of the CSSI, see *Final Evaluation Report, American Computer Security Industries, Inc., COMPSEC-II* (Report No. CSC-EPL-91/004).

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NETWORK COMPONENT EPL ENTRIES

	Serial No. **CSC-EPL-90/001**
EVALUATED PRODUCT:	VSLAN 5.0
VENDOR:	Verdix Corporation
EVALUATION DATE:	25 July 1990
OVERALL EVALUATION CLASS:	B2 MDIA Network Component

PRODUCT DESCRIPTION:

The Verdix Secure Local Area Network (VSLAN) is a network component that is capable of interconnecting host systems operating at different ranges of security levels allowing a multi-level secure (MLS) LAN operation.

The VSLAN is not intended to be a network system. It can be used to build and support a class B2 network system when included in the proper network system architecture. The VSLAN operates at the physical and data-link protocol layers of the Open Systems Interconnection (OSI) reference model, independently of higher-layer, host-to-host protocols. Because of the VSLAN's independence of these upper layer protocols, it can be used to integrate a variety of host systems ranging from DoD internet gateways to vendor-specific systems.

The VSLAN consists of a single Network Security Center (NSC) and up to 128 Network Security Devices (NSDs) interconnected by a transmission medium (i.e., coaxial cable). The NSC is a dedicated computer system that provides a centralized management facility. The NSC supports separate administrator and operator roles. It provides a menu-driven interface for the security officer (i.e., administrator and/or operator) to control the operation of the VSLAN and to collect and store audit data.

Each NSD operates as an individual node of the VSLAN, providing a trusted network interface for its attached host that provides the LAN communications (IEEE 802.3) and enforces the VSLAN security policy for all host-to-host data transfers. Each NSD provides a system bus interface to its attached host and acts as a memory device on its host bus. In order to integrate the NSD with the host operating system, host-specific software is needed to make use of the trusted network interface provided by the NSD. The VSLAN is currently capable of supporting the following system bus interfaces: IEEE P796 (Multibus-I), DEC Q22, IBM PC XT and PC AT, IEEE P1014/D1.2 (VME), IEEE 1196 (NuBus), and the AT&T 3B2.

The VSLAN mediates access between hosts and datagrams. Its security policy supports both discretionary and mandatory access controls. The discretionary access control (DAC) policy allows two VSLAN subjects to exchange datagrams only if the security officer has authorized communication between them. The mandatory access control (MAC) policy mediates access between VSLAN subjects and datagrams. Each datagram must have associated with it a

host-supplied sensitivity label indicating its security level. The VSLAN provides a flexible labeling scheme that supports up to 16 hierarchical classification levels and 64 non-hierarchical categories.

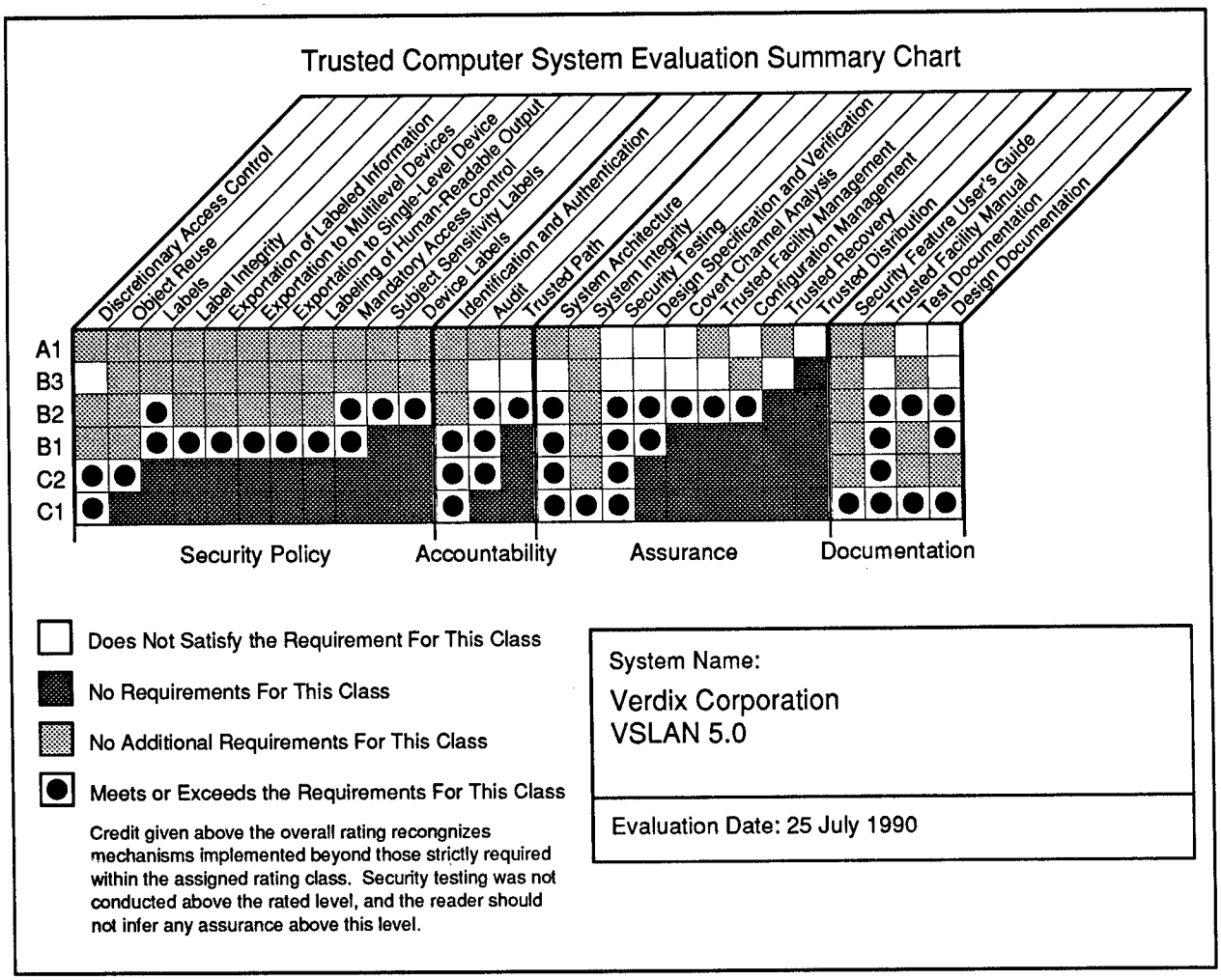
The VSLAN uses the Data Encryption Standard (DES) to encrypt all data transfers across the network. It uses DES primarily as a data integrity mechanism, instead of as a mechanism to enforce the VSLAN security policy. The class B2 MDIA evaluation criteria does not require the evaluation of the DES; therefore, neither the DES algorithm nor the VSLAN implementation of the DES are evaluated. The hardware and software components that make up the VSLAN, including the LAN cable, must be protected to the highest classification of data processed by the VSLAN. The VSLAN is trusted to protect information at two hierarchically adjacent security classifications. In addition to application environments involving the protection of classified information, the VSLAN could be used to protect unclassified and unclassified-but-sensitive information, which may include financial, proprietary, private, and mission-sensitive data.

EVALUATION SUMMARY:

The security protection provided by the VSLAN has been evaluated by the National Computer Security Center (NCSC) against the requirements specified by the *Trusted Network Interpretation of the Trusted Computer System Evaluation Criteria* (TNI), 31 July 1987, NCSC-TG-005, Version 1.

The NCSC evaluation team has determined that the highest class for which the VSLAN satisfies all the specified requirements of the TNI is a class B2 MDIA network component. A class B2 MDIA network component fulfills all the requirements as stated in Appendix A of the TNI for a class B2 Mandatory Access Control component, a class C2 Discretionary Access Control component, a class C2 Identification & Authentication component, and a class C2 Audit component. The VSLAN covert channel analysis is applicable only to the VSLAN NTCB partition. While it is possible to include an evaluated network M-component such as the VSLAN as part of a network system incorporating other M-components (such as multilevel hosts), this may introduce new covert channels or penetration scenarios that were not evident from the evaluation of either component by itself. A complete network system must always be evaluated as a whole to ensure that the components together enforce the overall policy.

In addition to the network component rating, the NCSC evaluation team has determined that the VSLAN satisfies the requirements for some of the security services described in Part II of the TNI. The services which are offered by the VSLAN are Authentication, Communications Field Integrity, Continuity of Operations, Protocol Based Protection Mechanisms, Network Management, and Data Confidentiality.



The Trusted Computer System Evaluation Summary Chart indicates the requirements and corresponding level that the VSLAN satisfies. For a more in depth description of VSLAN refer to the *Final Evaluation Report, Verdix Corporation, VSLAN* (Report No. CSC-EPL-90/001).

Evaluation of Part II Requirements

COMMUNICATIONS INTEGRITY

AUTHENTICATION		**
COMMUNICATIONS FIELD INTEGRITY		
	functionality	GOOD
	strength	GOOD
	assurance	GOOD
NON-REPUDATION		(not offered)

DENIAL OF SERVICE

CONTINUITY OF OPERATIONS		
	functionality	MINIMUM
	strength	MINIMUM
	assurance	GOOD
PROTOCOL-BASED PROTECTION MECHANISMS		
	functionality	FAIR
	strength	GOOD
	assurance	GOOD
NETWORK MANAGEMENT		
	functionality	PRESENT
	strength	FAIR
	assurance	GOOD

COMPROMISE PROTECTION

DATA CONFIDENTIALITY	**
TRAFFIC FLOW CONFIDENTIALITY	(not offered)
SELECTIVE ROUTING	(not offered)

** The Authentication and Data Confidentiality services are implicitly present for communications among the NSDs via the use of DES. However, their evaluation is beyond the scope of the Trusted Product Evaluation Program.

Serial No. **CSC-EPL-91/005**

EVALUATED PRODUCT: MLS LAN
Secure Network Server System

VENDOR: Boeing Aerospace

EVALUATION DATE: 2 July 1991

OVERALL EVALUATION CLASS: MI Network Component - A

PRODUCT DESCRIPTION:

At the time of publication, information in the form of a Completed Evaluated Product Listing was not available. A completed EPL will be provided as soon as possible. For the current information pretaining to this Evaluated Product please refer to the Product Bulletin, CSC-EPL-88/003, found on page 4-3a.1.

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RAMP EPL ENTRIES

Serial No. **CSC-EPL-86/004-01R**

RAMPED PRODUCT:	VAX/VMS [1]
VERSIONS:	Version 4.3, with September Systems Dispatch article 95.5.8, V4 Security Update and accompanying letter
VENDOR:	Digital Equipment Corporation
EVALUATION DATE:	30 July 1986
RATING MAINTENANCE DATE:	9 May 1988
OVERALL EVALUATION CLASS:	C2

PRODUCT DESCRIPTION:

VAX/VMS (Virtual Address eXtension/Virtual Memory System) is Digital Equipment Corporation's general-purpose operating system that runs on all VAX systems, which currently include processors ranging from the VAX 11/725 to the VAX 8800. VAX/VMS software provides an environment for concurrent execution of multi-user, time-sharing, batch, and real-time applications.

The VAX architecture provides four processor access modes that are used to provide read/write protection between user software and system software. Memory and device access is controlled on a per-page basis by processor memory management.

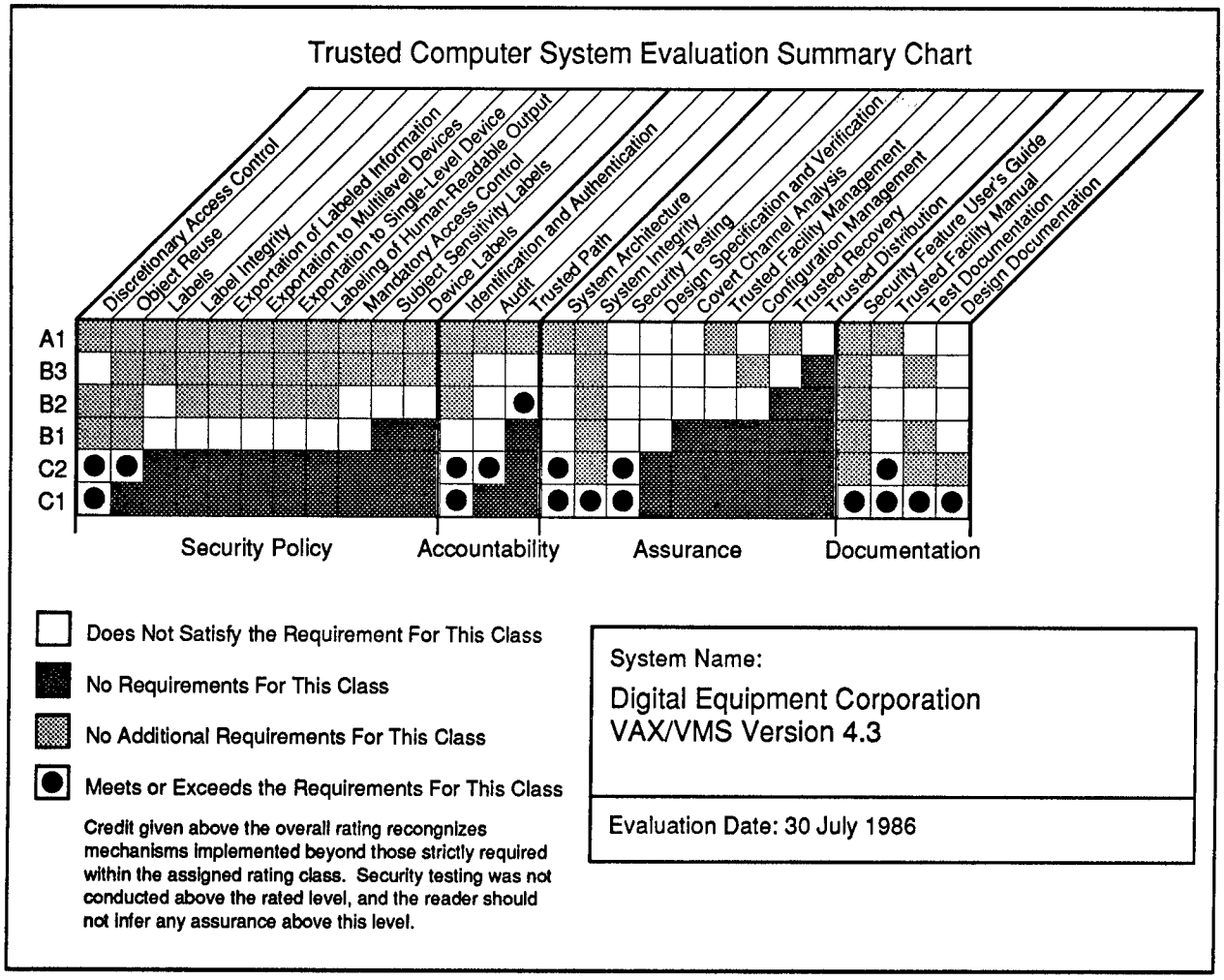
VAX/VMS software provides privilege and protection mechanisms to limit user access to system-controlled structures in physical memory, system-structured files and volumes, and some devices. User accounts are maintained in a User Authorization File (UAF) by a system manager. Each account has a user name and encrypted password for identification and authentication of the user, and the privileges available to the user.

Each account contains a User Identification Code (UIC) which is compared with user-specified file and device access control lists to provide discretionary access controls. Access control lists may also trigger real-time security alarms by access and/or access attempts. Messages are sent to any terminal designated as a security terminal and are also stored in a log file to provide an audit trail of user access activities.

[1] VAX and VMS are trademarks of Digital Equipment Corporation.

EVALUATION SUMMARY:

The security protection provided by VAX/VMS Version 4.3 (with September Systems Dispatch article 95.5.8, V4 Security Update and Accompanying letter) has been evaluated by the National Computer Security Center (NCSC) under the provisions of the Rating Maintenance Program. The security features of VAX/VMS were tested against the requirements specified by the *Department of Defense Trusted Computer System Evaluation Criteria*, dated 15 August 1983 (the Criteria). The evaluated hardware set includes the following stand-alone processors: 11/725, 11/730, 11/750, 11/751, 11/780, 11/782, 11/785, 8200, 8600, and 8650 as well as Norden Systems' MIL VAX I and II.



The NCSC evaluation team has determined that the highest class at which VAX/VMS Version 4.3 (with September Systems Dispatch article 95.5.8, V4 Security Update and accompanying letter) satisfies all the specified requirements of the Criteria is class C2, Controlled Access Protection.

In addition, VAX/VMS satisfies the class B2 trusted path requirement. The figure on the previous page indicates the requirements and corresponding level that VAX/VMS Version 4.3 (with September Systems Dispatch article 95.5.8, V4 Security Update and accompanying letter) satisfies.

The class C2 rating assigned to VAX/VMS Version 4.3 (with September Systems Dispatch article 95.5.8, V4 Security Update and accompanying letter) is the highest level of the Criteria at which the system satisfies all the specified requirements. For a complete description of how VAX/VMS satisfies each requirement of the Criteria, see *Final Evaluation Report, Digital Equipment Corporation, VAX/VMS Version 4.3* (Report No. CSC-EPL-86/004).

Serial No. CSC-EPL-90/003

RAMPED PRODUCT: System V/MLS Release 1.2.0 and 630/MLS Release 1.2.0 running with UNIX System V Release 3.1.1 on the AT&T 3B2/500 and AT&T 3B2/600 minicomputers and the AT&T630 MTGterminal. System V/MLS version 1.2.0 running with UNIX System V Release 3.1.1 on the AT&T 3B2/500 or AT&T 3B2/600 minicomputers.

ORIGINAL PRODUCT: System V/MLS version 1.1.2 running with UNIX System V Release 3.1.1 on the AT&T 3B2/500 or AT&T 3B2/600 minicomputers.

VENDOR: American Telephone and Telegraph Co.(AT&T)

RATING MAINTENANCE DATE: 28 September 1990

OVERALL EVALUATION CLASS: B1

EVALUATION SUMMARY:

AT&T has maintained the B1 rating of its System V/MLS product, through participation in RAMP. For more information on this evaluation process and System V/MLS Release 1.2.0, see the new Final Evaluation Report Addendum addressing System V/MLS Release 1.2.0.

PRODUCT DESCRIPTION

AT&T's System V/MLS Release 1.2.0 running with UNIX [1] System V Release 3.1.1 (hereafter referred to as System V/MLS) is a multi-level secure version of the UNIX System V operating system for the AT&T 3B2/500 and AT&T 3B2/600 minicomputers (both utilizing the WE32100 microprocessor and the WE32101 memory management unit). System V/MLS is a multi-user, multi-tasking operating system that can support up to 48 concurrent users on a 3B2/500 and up to 64 concurrent users on a 3B2/600.

System V/MLS maintains UNIX System V application compatibility, is compatible with the System V Interface Definition (SVID), passes the System V Verification Suite (SVVS), and is source and binary code compatible with existing programs, provided those programs do not require modifications to the System/V MLS Trusted Computing Base (TCB) or violate the system security policy.

[1] UNIX is a registered trademark of AT&T

In addition to using the traditional protection mechanism of the UNIX operating system to provide discretionary access control, System V/MLS also provides mandatory access control to limit the distribution of information to only those users who have been authorized for it.

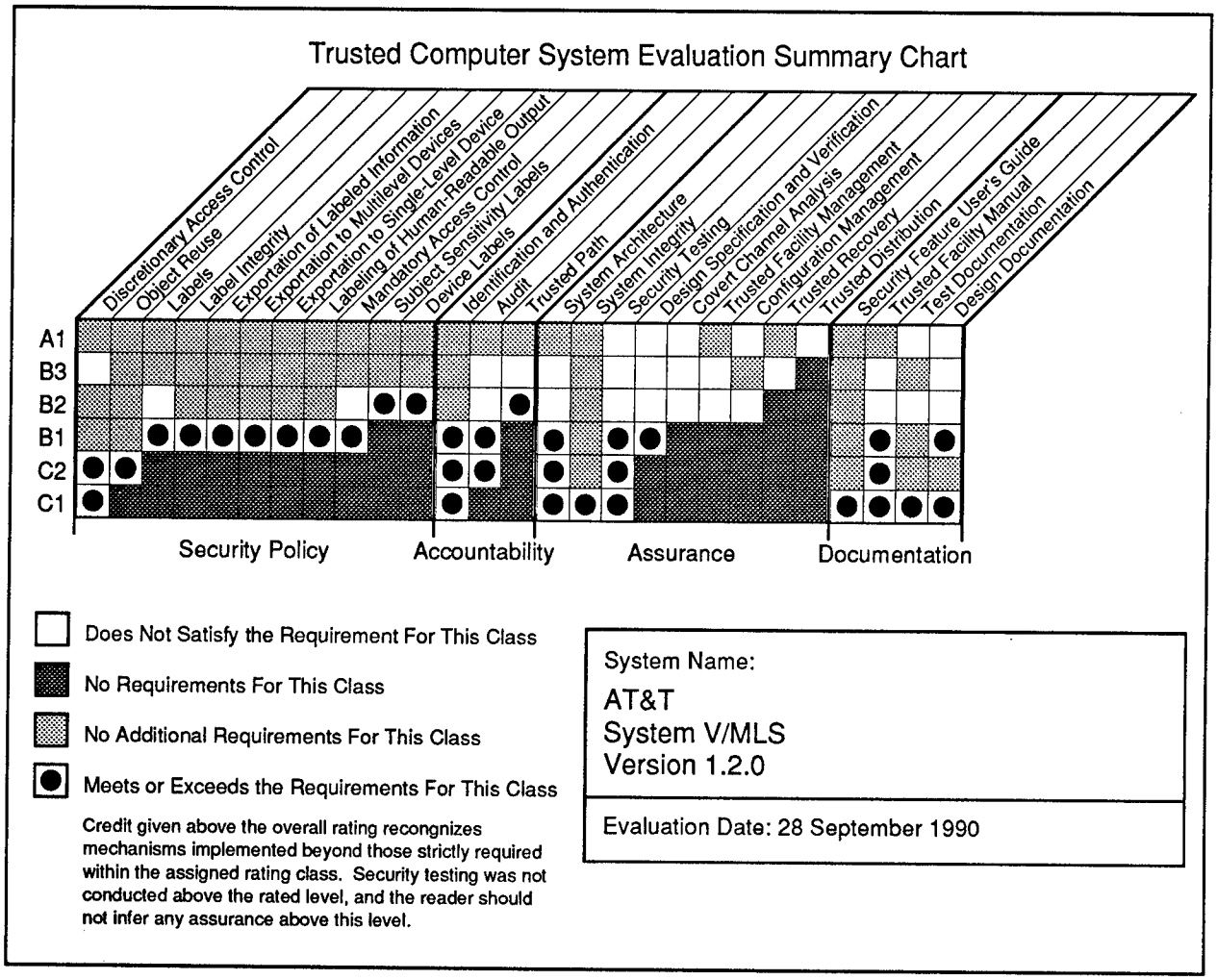
The mandatory security policy is consistent with the Bell-La Padula model and conforms with DoD policy. System V/MLS provides a flexible labeling scheme that supports up to 255 site selectable hierarchical classification levels and 1024 nonhierarchical categories. The administrator has the capability to restrict users and login ports to selectable classification ranges. A multi-level mail capability allows users to communicate with each other at classifications defined by the administrator.

System V/MLS enforces a security policy that prevents both unauthorized declassification of information and unauthorized modification of trusted code. The mandatory access controls are implemented in a manner analogous to the traditional UNIX commands for discretionary access control. Other commands have been added to allow users to create discretionary groups on the system. Furthermore, users can change levels without having to log out. A random password generator implements the algorithms recommended in the *DoD Password Management Guideline*, CSC-STD-002-85.

Audit trail records are generated for security-relevant events and can be analyzed by an administrator using an audit trail formatter. A trusted path is provided at login time to ensure that users are communicating with the TCB. The 630 Multi-Tasking Graphics intelligent terminal (630 MTG), a high-resolution, multi-window graphics terminal, can provide the user with up to seven windows on each of two System V/MLS hosts. The security label of the contents of each window is independent of the labels of other windows. A "cut and paste" capability allows the user to simultaneously edit files at different security levels within the constraints of the enforced security policy.System V/MLS also provides some features beyond those required for a class B1 system. These include B2 trusted path, B2 subject sensitivity labels, and B2 device labeling. This product participates in the NSA Rating Maintenance Phase (RAMP).

ENHANCEMENTS:

This RAMP action introduces the following improved functionality and enhancements: The audit subsystem now includes eight additional User Level Interface channels. These channels can be opened by more than one process at a time. The 630MTG now supports two hosts of equal accreditation ranges simultaneously, providing separation between the hosts.Utilizing the 630 MTG windowing features, an enhanced trusted path mechanism is built into security relevant commands. This mechanism involves displaying a separate, uniquely distinguishable trusted path window for secure communication between the user and the TCB. The windowing features are also used in the new user interface for selecting the subject sensitivity level for each newly created window. Additionally, declassification via the "cut and paste" option has been added to the 630MTG including confirmation and enhanced auditing, optionally including the declassified text.



For a complete description of how AT&T System V/MLS satisfies each requirement of the Criteria, see *Final Evaluation Report, American Telephone and Telegraph Corporation, System V/MLS Release 1.2.0* (Report No. CSC-EPL-90/003).

Serial No. **CSC-EPL-89/004.A**

RAMPED PRODUCT: Unisys OS 1100/2200
Release SB3R6

ORIGINAL PRODUCT: Unisys OS 1100
Security Release I

VENDOR: Unisys Corporation

RATING MAINTENANCE DATE: 5 April 1991

OVERALL EVALUATION CLASS: B1

EVALUATION SUMMARY:

Unisys Corporation has maintained the B1 rating of its OS 1100/2200 Release SB3R6 product, through participation in RAMP. For more information on this evaluation process and OS 1100/2200 SB3R6 see the new Final Evaluation Report SB3R6. OS 1100/2200 Release SB3R6 continues to provide these features beyond those required for a class B1 system: B2 trusted path, B3 DAC for groups, and B2 trusted facility maintenance.

PRODUCT DESCRIPTION:

OS 1100/2200 Release SB3R6 is a general purpose, multi-processing operating system running on Unisys 1100/90, System 11, and 2200/200 hardware. These models share a common architecture which employs a multi-state protection mechanism along with hardware memory protection. OS 1100/2200 is structured to take advantage of these features. For example, it supports multiple processes (activities), each running with a private virtual address space and capable of sharing protected subsystems (common memory banks).

OS 1100/2200 Release SB3R6 supports batch, time-sharing (demand), and transaction processing (TIP) modes. The trusted computing base (TCB) of OS 1100/2200 Release SB3R6 consists of specific releases of the following components: Executive, CMS1100, TELCON, COMUS, FAS, IRU, UDS, MCB, PERCON, SIMAN, SSP, TLABEL, and DPREP1100. Communications are provided by Distributed Communications Processors (DCP) and Integrated Communication Processors (ICP) operating as front end processors under control to CMS 1100 and TELCON. The OS 1100/2200 Executive is the base component and a prerequisite for the other components. The TCB enforces a mandatory and discretionary security policy, performs user identification and authentication, clears residue, generates audit trail and accounting records, and provides a base upon which to build secure application programs.

OS 1100/2200 Release SB3R6 provides isolation of the OS 1100/2200 Executive through the use of hardware protection mechanisms. Access to OS 1100 subsystems (shared memory banks) is protected with controlled access to entry points (gates). If access is permitted to the entry point, the system switches the security attributes of the process (activity) to those specified for the subsystem. Activity isolation is achieved by using a hardware and software architecture which includes a per-activity virtual address space, per-activity stacks, and architecturally defined activity state changes.

OS 1100/2200 Release SB3R6 provides a mandatory access control policy consistent with the Bell-LaPaduala model. Mandatory access control is based on labeling which supports up to 64 hierarchical levels and 30 categories. An administrator can attach symbolic names to each level and each category. Additionally, each category may be securely re-defined by an administrator. OS 1100/2200 requires that all subjects and objects have a mandatory label and ensures that all accesses to objects conform to the security policy.

Discretionary access control provided by OS 1100/2200 Release SB3R6 is based on access lists which may be private (default), public, or semi-private (access control record attached). Access control records specify by whom, when, and how the object may be accessed. OS 1100/2200 not only provides discretionary access controls available for individual users, access may be controlled at a group level as well.

OS 1100/2200 Release SB3R6 provides clearing of residue (object reuse) in registers, main storage, and mass storage.

Identification and authentication of batch, demand, and TIP users is accomplished by presenting a userid and password to the TCB's login facility. Identification and authentication information is stored in a protected database in the OS 1100/2200 file system.

OS 1100/2200 Release SB3R6 provides an auditing facility to ensure user accountability. All security-relevant events are always audited, not just auditable. This facility includes collection, reduction, backup, and audit data recovery capabilities. The Log Analyzer (LA) provides audit reduction capabilities including security reports, actions of individual users, and references to specific objects or object security levels.

OS 1100/2200 also provides the ability to restrict user privileges to those required to perform their duties. All users (including operators and administrators) are subject to this mechanism. The system supports a Security Administrator role. This administrator is responsible for the overall security of the system. Sub-administrators can also be defined to the system. System operators and administrators are trusted individuals and their interactions with the system are audited.

OS 1100/2200 Release SB3R6 also provides some features beyond those required for a class B1 system. These include B2 trusted path, B3 DAC for groups, and B2 trusted facility management.

PRODUCT ENHANCEMENTS:

OS 1100/2200 Release SB3R6 contains no changes to the security policy, features or mechanisms provided by the originally evaluated product. This release is a maintenance release, and as such, contains maintenance fixes, performance enhancements and non-security relevant features.

For a complete description of how Unisys OS 1100/2200 satisfies each requirement of the Criteria, see *Final Evaluation Report, Unisys Corportation, OS 1100* (Report No. CSC-EPL-89/004) and *Final Evaluation Report Addendum, Unisys Corporation, OS 1100/2200 Release SB3R6* (Report No. CSC-EPL-89/004.A).

Serial No. **CSC-EPL-90/004.A**

RAMPED PRODUCT: SVS/OS CAP 1.01

ORIGINAL PRODUCT: SVS/OS CAP 1.00

VENDOR: Wang Laboratories, Inc.

RATING MAINTENANCE DATE: 16 September 1991

OVERALL EVALUATION CLASS: C2

EVALUATION SUMMARY:

Wang Laboratories, Inc. has maintained the C2 rating of its Virtual Operating System with Controlled Access Protection, through participating in RAMP. VS/OS CAP 1.01 is a maintenance release of VS/OS CAP 1.0 which was formally evaluated at C2. There have been no intervening product releases. The changes in VS/OS CAP 1.01 have been designed and analyzed in accordance with National Security Agency's Ratings Maintenance Program.

PRODUCT DESCRIPTION:

Wang's Secure Virtual Storage Operating System with Controlled Access Protection, SVS/OS CAP 1.01, runs on the Wang VS Product Family, a series of 32-bit super-minicomputers with a virtual memory system that can support from 512KB to 32MB of addressable physical storage. SVS/OS CAP 1.01 consists of the VS Operating System, release 7.33.36 Enhanced Security Access Controls (ESAC), and I/O Device Support Package Version 5.0.

SVS/OS CAP 1.01 is a general-purpose time-sharing system which supports identification and authentication of users, discretionary access controls, object reuse protection, and auditing.

SVS/OS CAP 1.01 provides isolation of the TCB from users. Process isolation is implemented through the use of individual process virtual address spaces and hardware memory protection mechanisms.

User accounts are maintained in a protected system file by the System Administrator. Each account has a logon ID and a password. SVS/OS CAP 1.01 also provides optional password control capabilities which include system generated passwords; password expiration; limiting of invalid logon attempts; locking of unused logon IDs; restricting logons for a logon ID by time and date; enforcing minimum password length; maintaining a password history to prevent their reuse; and password encryption.

Discretionary access controls (DAC) on files consist of access control lists and file protection classes which use hierarchical access levels (Write, Read, Execute, and Null). The access control lists can allow access by, or deny access to, individuals or groups of individuals.

SVS/OS CAP 1.01 provides auditability of all security-relevant events. The SA can select events to be audited, create log files, and specify log file sizes. The selectivity of events is based on three categories: system, file, and user. System events are the events auditable for every file and user on the system. File events are the auditable events related to a particular file, or set of files, and user events are the events auditable for a given user ID or set of user ID, including operators. The SA is able to select events to be audited through a menu driven interface. SVS/OS CAP 1.01 allows the SA to produce reports based upon the audit data. These reports are easy to read and interpret.

For a complete description of how Wang SVS/OS CAP 1.01 satisfies each requirement of the Criteria, see *Final Evaluation Report, Wang Corportation, SVS/OS CAP 1.00* (Report No. CSC-EPL-90/004) and *Final Evaluation Report Addendum, Wang Corporation, SVS/OS CAP 1.01* (Report No. CSC-EPL-90/004.A).

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PUBLICATIONS ISSUED BY THE STANDARDS, CRITERIA AND GUIDELINES DIVISION

As of 5 December 1991

PUBLICATIONS ISSUED BY
THE STANDARDS, CRITERIA AND GUIDELINES DIVISION

1. Department of Defense Trusted Computer System Evaluation Criteria 26 December 1985, DOD 5200.28-STD (Supersedes CSC-STD-001-83, dtd 15 Aug 83).

2. Department of Defense Password Management Guideline 12 April 1985, CSC-STD-002-85.

3. Computer Security Requirements - - Guidance for Applying the Department of Defense Trusted Computer System Evaluation Criteria in Specific Environments 25 June 1985, CSC-STD-003-85.

4. Technical Rationale Behind CSC-STD-003-85: Computer Security Requirements - - Guidance for Applying the Department of Defense Trusted Computer System Evaluation Criteria in Specific Environments 25 June 1985, CSC-STD-004-85.

5. Department of Defense Magnetic Remanence Security Guideline 15 November 1985, CSC-STD-005-85.

6. Advisory Memorandum on Office Automation Security Guideline 16 January 1987, NTIS-SAM COMPUSEC/1-87 (Supersedes NCSC-WA-002-85).

7. Trusted Network Interpretation of the Trusted Computer System Evaluation Criteria 31 July 1987, NCSC-TG-005, Version 1.

8. A Guide To Understanding Discretionary Access Control In Trusted Systems 30 September 1987, NCSC-TG-003, Version 1.

9. A Guide To Understanding Configuration Management In Trusted Systems 28 March 1988, NCSC-TG-006, Version 1.

10. A Guide to Understanding Audit in Trusted Systems 1 June 1988, NCSC-TG-001, Version 2.

11. Computer Security Subsystem Interpretation of the Trusted Computer System Evaluation Criteria 16 September 1988, NCSC-TG-009, Version 1.

12. A Guide To Understanding Design Documentation In Trusted Systems 6 October 1988, NCSC-TG-007, Version 1.

13. Glossary of Computer Security Terms 21 October 1988, NCSC-TG-004, Version 1 (NCSC-WA-001-85 is obsolete).

14. A Guide To Understanding Trusted Distribution In Trusted Systems 15 December 1988, NCSC-TG-008, Version 1.

15. Guidelines for Formal Verfication Systems 1 April 1989, NCSC-TG-014, Version 1.

16. Rating Maintenance Phase - Program Document 23 June 1989, NCSC-TG-013, Version 1.

17. Trusted UNIX Working Group (TRUSIX) Rationale for Selecting Access Control List Features for the UNIX System 7 July 1989, NCSC-TG-020-A, Version 1.

18. Trusted Product Evaluation Questionnaire 16 October 1989, NCSC-TG-019, Version 1.

19. A Guide to Understanding Trusted Facility Management 18 October 1989, NCSC-TG-015, Version 1.

20. Computer Viruses: Prevention, Detection, and Treatment 12 March 1990, C1-Technical Report-001.

21. Trusted Product Evaluations : A Guide For Vendors 29 April 1990, NCSC-TG-002, Version 1.

22. Trusted Network Interpretation Environments Guideline – Guidance for applying the Trusted Network Interpritation 1 August 1990, NCSC-TG-011, Version 1.

23. Trusted Database Management System Interpretation of the Trusted Computer System Evaluation Criteria April 1991, NCSC-TG-021, Version 1.

Single copies of the above documents may be obtained by contacting :

DIRECTOR
National Computer Security Center
ATTN: X71
Fort George G. Meade, MD
20755-6000

or calling

(410) 766-8729

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ENDORSED TOOLS LIST

As of 5 December 1991

INTRODUCTION

The primary goal of the National Computer Security Center (NCSC) is to encourage the widespread availability of trusted systems. This goal is realized, in large measure, through the NCSC's Commercial Product Evaluation Program. This program focuses on the technical evaluation of the protection capabilities of commercially produced and supported systems. The standards against which products are evaluated are the Department of Defense Trusted Computer System Evaluation Criteria (TCSEC), the Trusted Network Interpretation of the Trusted Computer System Evaluation Criteria (TNI), the Computer Security Subsystem Interpretation of the Trusted Computer System Evaluation Criteria (CSSI), and the Trusted Database Management System Interpretation of the Trusted Computer Evaluation Criteria (TDI).

The TCSEC and TNI classify systems into seven hierarchical classes based on features and assurances to support three types of security requirements - policy, accountability, and assurance. One of the assurance requirements, Design Specification and Verification, appears in the upper classes of the TCSEC and TNI. The highest level of trust, Verified Design or A1, requires that a Formal Top Level Specification of the design be maintained and shown, either formally or informally,to be consistent with the formal security policy model for the system. In addition, the requirements state that "This verification evidence shall be consistent with that provided within the state-of-the-art of the particular Computer Security Center-endorsed formal specification and verification system used."

PURPOSE

The purpose of the Endorsed Tools List (ETL) is to inform system developers which formal specification and verification tools are endorsed by the NCSC for use in designing candidate A1 systems (that is, approved for use in satisfying the A1 Design Specification and Verification requirement). The ETL specifies the current version of each verification tool that is approved by the NCSC.

Additions to and deletions from the ETL will occur as the need arises, as determined by the NCSC. A compelling reason must exist to justify the addition of a verification tool onto the ETL. The proposed tool will have to offer some significant capability not provided by the current set of tools. Addition of a tool onto the ETL means that this tool may be named in a Verification Tool Memorandum of Agreement (MOA) between the NCSC and a system developer. The MOA should specify the specific tool and version to be used in the formal verification process.

Likewise, profound changes in circumstances could result in the removal of a verification tool from the list (e.g., discontinuance of support from the tool developer). Removal of a tool from the ETL means that no new MOAs between the NCSC and system developers will be executed specifying that particular tool as the vehicle for formal specification and verification.

Formal verification is a young technology. The tools are constantly undergoing enhancement and correction. Consequently, the version of a tool that has been evaluated by the NCSC

may not be the newest, most capable version. These modified versions of an endorsed tool are known as "beta" tool versions. Beta tool versions may undergo evaluation by the NCSC and, if the evaluation criteria are met, are declared to be the new endorsed version of the verification system, replacing the previously endorsed version.

Trusted system developers may choose to use a beta version of an endorsed tool. However, it must be realized that beta versions have not been completely evaluated and are not endorsed. Beta versions are released primarily to allow the verification tool developers to test the tool before submitting it for evaluation. Thus, beta tool users incur a slight risk. When entering a formal evaluation with the NCSC, specifications and proof evidence must be submitted which can be completely checked without significant modification using either the currently endorsed version of a verification tool or a previously endorsed version that was agreed upon in a MOA. Submitted specifications and proof evidence which are not compatible with the endorsed or agreed upon version of the tool may require substantial modification by the system developer.

The Guidelines for Formal Verification Systems was approved in April 1989 by the NCSC. The products on the ETL were evaluated and endorsed prior to the guideline's completion. These products were evaluated against draft versions of the guideline. The outcome of the evaluation, including a complete analysis of the verification tool, is documented in a Technical Assessment Report (TAR). The ETL entry is intended as only a brief summary for quick reference and therefore should not be used as the sole source for choosing a verification tool. Combining information from both the ETL entry and the TAR is vital to making a well-informed decision. The TARs can be obtained by contacting the Office of Research and Development at the National Computer Security Center in writing.

DIRECTOR
National Computer Security Center
ATTN: R232, TAR request
Fort George G. Meade, MD
20755-6000

DEFINITIONS

BETA TOOL VERSIONS - Beta versions are intermediate releases of a product to be tested at one or more customer sites by the software end-user. The customer describes in detail any problems encountered during testing to the developer, who makes the appropriate modifications. Beta versions are not endorsed by the NCSC, but are primarily used for debugging and testing prior to submission for endorsement.

ENDORSED TOOLS LIST (ETL) - A list composed of those verification tools currently recommended by the NCSC for use in satisfying the A1 Design Specification and Verification requirement in the Trusted Computer System Evaluation Criteria and Trusted Network Interpretation of the Trusted Computer System Evaluation Criteria.

GUIDELINES FOR FORMAL VERIFICATION SYSTEMS - NCSC-TG-014 - A document that provides the basis for determining the technical merit and stability of formal specification and verification tools. The criteria provides verification system evaluators with a metric with which to assess the breadth of a verification tool and provides guidance to developers on the fundamental requirements of candidate endorsed verification tools.

TRUSTED COMPUTER SYSTEM EVALUATION CRITERIA (TCSEC) - A Department of Defense standard (DoD 5200.28-STD) that was published in December 1985 to provide a means for evaluating specific security features and assurance requirements available in "trusted commercially available automatic data processing systems". The rating scale in the TCSEC extends from one that represents a minimal level of trust to one for "state of the art" features and assurances.

TRUSTED NETWORK INTERPRETATION OF THE TCSEC (TNI) - A document, published in July 1987, that provides a means for evaluating specific security features and assurance requirements as well as additional security services of networks.

VERIFICATION TOOL MEMORANDUM OF AGREEMENT (MOA) - A Memorandum of Agreement between a trusted system developer and the NCSC in which both agree on the endorsed verification tool and version to be employed for the secure system development effort.

FORMAL DEVELOPMENT METHODOLOGY

VENDOR:	UNISYS Corporation
VERSION EVALUATED:	12.4
EVALUATION DATE:	15 January 1988

PRODUCT DESCRIPTION:

The Formal Development Methodology consists of a set of tools and languages, as follows:

(1) The Ina Jo language, for writing specifications and requirements.

(2) The Inamod language, an extension of the Ina Jo language, for writing assertions about programs.

(3) The Ina Jo Processor, for examining specifications and files of completed proofs. The post-processor eliminates all steps not actually used in a proof, converts the contents of the file from the ITP internal representation, and reformats the text.

The goal of FDM is to design, formally specify and produce verified code for complete systems. However, some of the software tools of FDM are incomplete at this time. The Ina Jo and Inamod languages are considered complete; language extensions and new capabilities to aid the user are occasionally implemented. In addition, the Ina Jo language processor, the ITP, and the ITP post-processor are complete. The initial VCG, for Modula, and Ina Flo have not been completed and were not part of the evaluation or endorsement.

FDM has been used extensively on over a half-dozen significant systems for DCA, AFWL, RADC, and others. Applications include Autodin II, the Secure Transaction Processing Experiment (STPE), a Job Stream Separator (JSS), a kernelized IBM VM (KVM), a Computer Operating System/Network Front End (COS/NFE), and the Secure Release Terminal. FDM has been used in several recent A1 development efforts, including Blacker.

EVALUATION SUMMARY:

FDM 12.4 has been evaluated by the National Computer Security Center. The evaluation team analyzed the changes between the 12.3 and Beta 4 version of the tool. The changes fell into the following categories: syntax changes, bug fixes, new features, and changes to theorems. In addition to the changes that were identified by the developer, the team examined configuration management evidence, source code, documentation, and existing problems with the tool that were identified in the Verification Assessment and Mitre Reports.

The evaluation was not exhaustive, but was sufficient to determine that version 12.4 is a distinct improvement over version 12.3. A few of the most notable enhancements are the increase in theorem proving capability, the addition of a type checking facility, and improved error reporting. A complete discussion of the changes to the tool can be found in the Technical Assessment Report.

GYPSY VERIFICATION ENVIRONMENT

VENDOR:	Computational Logic Inc. (CLINC) VERSION
EVALUATED:	GVE version 13.16 (Gypsy dialect 2.05)
EVALUATION DATE:	July 1987

PROJECT DESCRIPTION:

The GVE consists of a set of tools and languages, as follows:

(1) The Gypsy language, which is used for both system design and specification.

(2) The Verification Condition Generator, which translates specifications into problems in first-order logic.

(3) The Gypsy Theorem Prover (GTP), for determining whether first-order logic statements are theorems.

(4) The Gypsy to Bliss translator, which converts Gypsy code to Bliss code.

(5) The Gypsy to Ada translator, which converts a subset of the present Gypsy language into non-standard Ada.

(6) The DataBase Manager, which is used to track the status of various scopes and theorems the user is maintaining.

(7) The Gypsy language parser, for determining the syntactic and semantic validity of a design.

(8) An interface to the ZMACS editor for ease of text entry.

(9) A program optimizer which proves the validity of efficiency-based decisions in compilation.

The Gypsy Verification Environment (GVE) is designed to be a complete verification system supporting both a specification language and a programming language. The goal is to formally specify and verify design and code for computer systems and applications. However, some of the software tools of the GVE are incomplete. The Gypsy to Ada translator currently converts a subset of the Gypsy language to nonstandard Ada. The dependency tracking mechanism of the GVE, currently does not provide complete and proper tracking of dependencies between specifications, code, proofs and lemmas.

The GVE has been used in a number of prior efforts, including the Secure Communications Processor, the Encrypted Packet Interface, and is presently being used in several A1 development efforts.

EVALUATION SUMMARY:

The Gypsy Verification Environment version 13.16 using Gypsy dialect 2.05 has been evaluated by the National Computer Security Center (NCSC) against the requirements specified by the Verification System Evaluation Factors. The NCSC has determined that the GVE satisfies all of the requirements at the minimum level. However, it was noted that there is an obvious need for better documentation for system users, especially for new users. In addition, the lack of a formal basis and formal semantic definition is a serious shortcoming that needs to be addressed in the near future. While the GVE is not without weaknesses, it has received acceptance throughout the verification community, not only for its applicability and convenient approach, but also for its unique capabilities. The GVE is currently the only system which has the capability to handle (limited) concurrency or do code level proofs.

Verification Evaluation Factors

1. Specification Language
2. Theorem Prover
3. Implementation
4. Documentation
5. Features
6. Assurance and Soundness
7. User Interface
8. Methodology

For a complete description of how the GVE satisfies each of the evaluation factors, see Technical Assessment Report for GVE 13.16 using Gypsy 2.05.

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DOCKMASTER

DOCKMASTER

The National Computer Security Center's (NCSC's) unclassified computer system, DOCKMASTER, was established in 1985 as an Information Security Showplace. Located just outside of Baltimore, MD, it serves as the focal point for the nationwide dissemination and exchange of Information Security data.

Information Security data is provided to DOCKMASTER customers through electronic mail (which provides direct, on-line, person-to-person distribution of text), and through electronic Bulletin Boards. DOCKMASTER also provides hands-on exposure to versions of the software verification tools supported by the Center and used by vendors in the development of highly secure computer systems.

At present there are over 3000 users on DOCKMASTER utilizing it's capabilities to the fullest. These users retrieve data, such as available training courses, upcoming INFOSEC conferences, and the Evaluated Products List. The user family encompasses the Department of Defense, other federal agencies, contractors, academia, and commercial corporations - all concerned with Information Security.

DOCKMASTER is a large-scale, general-purpose, multi-user Honeywell DPS870M computer system. The NCSC chose this computer because of its Multics Operating System, which has been given a security rating of B2 as defined by the Department of Defense Trusted Computer System Evaluation Criteria, also known as the "Orange Book".

The Multics operating system maintains tight access control on all system files and programs. It will not grant a user access to any data on the system unless that permission has previously been established by the proper personnel, based on a valid requirement for the data. DOCKMASTER's user identification codes and passwords form an important component of its security architecture. DOCKMASTER users also play a vital security role by protecting their assigned account ID and passwords, thus protecting the data to which they have access.

The NCSC currently provides, free of charge to its DOCKMASTER users, several mechanisms for accessing the system. They include MILNET, TYMNET, and local dial-in.

MILNET is a portion of the nationwide Defense Data Network (DDN) and is an operational Defense Department network. TYMNET is a nation-wide, value-added network used for remote access into DOCKMASTER. Local dial-in provides a telephone number so users may dial into the system from the local area.

If you would like to obtain an account on DOCKMASTER, please complete the following DOCKMASTER Registration Packet.

INSTRUCTIONS FOR COMPLETING THIS PACKET

1. Read through the attached Policy portion of this packet. This is your copy to retain for future reference.

2. Complete the entire request form.

a. The Requester Information is self explanatory. (User types can be determined by reading the Policy).

b. The Endorser Information is completed by the requester's supervisor.

c. Your project will be Catwalk unless your NCSC sponsor informs you otherwise. (Catwalk is a generic project which allows for use of all public forums on the system and for use of the mail system).

d. The Intended Use of the Account is self explanatory.

e. The Estimated Period of Use is self-explanatory.

f. The Communications Access Requirement is self-explanatory. (Tymnet is free of charge to our users)

g. Sign the requester's signature line.

h. The sponsor's signature will be signed by an NCSC employee.

3. Sign the Memorandum of Agreement. NO ACCOUNT WILL BE ISSUED WITHOUT ONE!!!

4. If you are NOT applying for a Catwalk account, also sign the DOCKMASTER Access Agreement. Failure to do so will delay the registration process.

5. Return the appropriate forms to:

DIRECTOR
National Computer Security Center
ATTN: C83, Accounts Administrator
Fort George G. Meade, MD
20755-6000

OR

DIRECTOR
National Computer Security Center
ATTN: The name of your sponsor
Fort George G. Meade, MD
20755-6000

POLICY

Date: July 1989

NATIONAL COMPUTER SECURITY CENTER (NCSC) POLICY:

ESTABLISHING NEW USER ACCOUNTS ON DOCKMASTER

I. DOCKMASTER is the NCSC's UNCLASSIFIED Computer System currently serving its user community in support of the Center's mission to further computer security. DOCKMASTER provides a focal point for interacting and exchanging computer security related ideas amongst its users. It is not an intermediate node for connecting to other Network Hosts.

II. Definitions:

a. User - A person or logical entity, such as a Daemon, who is registered on the DOCKMASTER system and,id, and tag. A person may be registered on more than one project (unless one of the projects is Catwalk). Thus, one person can be two different users, since a user is identified by the combination of his userid, project_id and tag.

b. CESSO - Computer Equipment Systems Security Officer. The CESSO is responsible for all security related concerns. The DOCKMASTER CESSO is Cindy Hash who may be reached on 1-800-336-DOCK.

c. System Administrator - A highly privileged user who maintains system data bases that control when and by whom the system can be accessed. The system administrator has access to all Multics commands and has the ability to alter any operating parameter of the system and make emergency repairs. The system administrator also ensures the correct use of the system resources. The DOCKMASTER system administrators are Linda Adkins, Les Gotch, Tony Thibodeaux and Joe Paradiso. They can be reached on 1-800-336-DOCK.

d. Accounts Administrator - A special class of system administrator who has limited access to register users, run the billing software, and perform accounting functions (e.g., monitors quota assigned to projects). The accounts administrators are Cindy Hash and Dawn Brown. They can also be reached on 1-800-336-DOCK.

e. Project - A set of users grouped together for accounting and access control purposes.

f. Project Administrator - A person who has the access to specify the spending limits and other attributes for the users of a particular project. The project administrator maintains the project master file (pmf). If the duties of project administrator are not delegated to a project's administrator, they may be performed by an accounting or system administrator. All DOCKMASTER projects will be delegated.

g. Project_id - The name assigned to a project. The name must be from one to nine characters, and must begin with a capital letter or digit.

h. Userid - A unique name assigned to each user of the system. It is usually some form of the user's name (usually his surname). The name must be from one to twenty characters, usually begins with a capital letter, and may not contain punctuation characters. A password is associated with the userid. The userid can be used to identify a person on several projects.

i. NCSC - National Computer Security Center. The mailing address is:

DIRECTOR
National Computer Security Center
Fort George G. Meade, MD
20755-6000

j. Owner Company - A company for whom a Project has been created.

III. Policy

1. The HardwareSoftware Division is the Office of Primary Interest (OPI) for all administration and use of DOCKMASTER accounts.

2. The HardwareSoftware Division is responsible for the establishment of new user accounts and projects on DOCKMASTER and retains final approving authority for all accounts and projects.

3. No account will be granted without a signed Memorandum of Agreement on file with the NCSC.

4. All DOCKMASTER users must be a United States citizen or an alien lawfully admitted in the U.S. for permanent residence.

5. All DOCKMASTER connections must be made within the continental U.S.

6. The NCSC does not guarantee anonymity for account holders on DOCKMASTER. In other words, we will not guarantee that people do not know that you have an account on DOCKMASTER.

7. Accounts will be granted based on the availability of system resources.

8. DOCKMASTER will be used for UNCLASSIFIED processing only.

9. Any detected misuse of system resources (e.g., games, profit) or circumvention of security mechanisms will result in the deletion of the user's account.

10. Unsuitable language on DOCKMASTER will not be tolerated.

11. Any opinions expressed by National Computer Security employees can not be interpreted as official.

12. All accounts will be revalidated twice a year. If a user has not used his account for six months, the account will be deleted without notification. To re-establish the account, a new registration packet must be completed.

13. Proprietary access for users will be given only with the concurrence of the Project Administrator for the project containing that particular type of proprietary data. Initial establishment of proprietary data on the system MUST have the approval of the NCSC Office of Computer Security Evaluations, Publications, and Support so that the appropriate mandatory controls can be implemented.

14. The NCSC is not obligated to give communications access to every account holder (e.g., Tymnet access).

15. Users wishing dial-out access from DOCKMASTER must submit their request in writing along with an approval signature from an Office Chief within the NCSC. This request should be coordinated with the project administrator. Each request will be evaluated on a case by case basis and all approved requests will be limited in the duration of use.

16. The NCSC will provide all new account holders with enough documentation to use the basic services of DOCKMASTER. The NCSC does maintain a supply of various other Multics manuals but they are given out on a first come first serve basis. Contact the Accounts Administrator for more information about these manuals. Any other manuals needed must be ordered from Honeywell at the expense of the user.

Honeywell Information Systems Inc.
7900 Westpark Drive
McLean, VA 22102
ATTN: Technical Librarian

17. The NCSC reserves the right to change or modify any or all NCSC provided software at any time without prior notice to the user. Where possible, users will be notified of incompatible software changes well in advance.

18. New user accounts will be installed once a week.

19. Upon installation of a new account, the new user will be notified by mail of his userid and password; each in a separate envelope.

20. The project administrator will be notified to install the new user's userid in the project master file.

21. The NCSC is not required to assist the user with any tasks related to the use of the software nor to provide the user with any training.

22. The system will automatically require a user to change his password at a fixed interval of time. Passwords are machine generated.

23. The third consecutive unsuccessful login attempt will be automatically reported to the CESSO. The user's process will be dropped and the user will have to establish another connection.

24. All user activity is subject to auditing by the DOCKMASTER system's audit trails.

25. Any knowledge that CLASSIFIED data has been introduced to DOCKMASTER must be reported to the CESSO immediately.

26. The NCSC will maintain a trouble reporting mechanism for user problems.

27. The NCSC will not be obligated to ship tapes or hardcopy to account holders.

28. Availability of private disk packs and tapes for individuals and projects will depend upon user load and hardware availability.

29. Although DOCKMASTER will normally be available 24 hours a day, 7 days a week, the NCSC does not guarantee uninterrupted service. Attended service will be provided Monday through Friday between the hours of 7:00am and 6:00pm EST; and on weekends between 8:00am and 4:00pm EST. All account holders will be notified in advance of any scheduled outages (e.g., preventive maintenance, equipment shutdown, etc.).

30. Currently there are six user types for individuals requesting access to DOCKMASTER:

Type 1 - Individuals employed by the NCSC

Type 2 - Individuals employed by the Host Agency

Type 3 - Individuals employed by other US Government Organizations

Type 4 - Contractor employees working on an official computer security project or for the US Government

Type 5 - Individuals affiliated with academia, who are not contractors

Type 6 - All others

31. Individuals listed under types three, four, five or six will be required to have a NCSC sponsor before obtaining an account.

32. Any significant changes to this Policy may result in the issuance and resigning of a new Memorandum of Agreement.

DOCKMASTER ACCOUNT REQUEST FORM

REQUESTER INFORMATION:

User Type (reference Policy): _____

Name: _____

Organization - Company: _____
Business

Address: _____

_____

_____

Business
Phone: _____

Are you a US person (i.e. a citizen of the US or an alien lawfully admitted for permanent residence)? YES NO IF NO, write country or countries of which you are a citizen _____ Are you a citizen of any other countries (i.e., Dual Citizenship)? If so, of what countrycountries?

_____

ENDORSER INFORMATION:

Name: _____

Title: _____ Business Phone: _____

Signature: _____

ON WHICH DOCKMASTER PROJECT DO YOU WISH TO BE REGISTERED?

_____ NOTE: You will be registered on project Catwalk unless you have a need to access another project. Your sponsor will tell you this.

If the project has proprietary data, a signature from the project administrator is necessary.

_____

INTENDED USE OF ACCOUNT: NOTE: E-Mail is not a sufficient reason for obtaining an account:

_____

_____

ESTIMATED PERIOD OF USE: From _____ To _____

COMMUNICATIONS ACCESS REQUIREMENT:

Local Dial-In ___ Milnet TAC Access ___ Tymnet ___

Already Have TAC ___

REQUESTER'S SIGNATURE: _____

SPONSOR'S SIGNATURE : _____

PRIVACY ACT STATEMENT

AUTHORITY: 50 U.S.C. 402 (Note), E.O. 12333

PRINCIPLE PURPOSE: To allow the National Computer Security Center to manage information pertaining to a client's DOCKMASTER account.

ROUTINE USE: Dissemination within the National Computer Security Center.

DISCLOSURE OF INFORMATION: Disclosure of this information is voluntary.

EFFECTS OF NOT PROVIDING THE INFORMATION: Failure to provide the information requested could result in the inability of the National Computer Security Center to provide the client with a DOCKMASTER account.

INTERNAL USE ONLY

DATE RECEIVED: _____

USERID ASSIGNED: _____

DATE PACKET MAILED: _____

MEMORANDUM OF AGREEMENT

DATE: JULY 1989

NCSC MEMORANDUM OF AGREEMENT: ESTABLISHING NEW USER ACCOUNTS ON DOCKMASTER.

The purpose of this document is to outline in detail, an agreement between the NCSC and individual users.

1. DOCKMASTER will be used for UNCLASSIFIED processing only.

2. Sharing of accounts (userids) on DOCKMASTER is prohibited. Violators will lose their accounts.

3. Users are responsible for the protection of their passwords. Should a user suspect compromise of his password, he must change it immediately and report the suspected compromise to the NCSC CESSO for DOCKMASTER.

4. Any detected misuse of system resources (e.g., games, profit) or circumvention of security mechanisms will result in the deletion of the user's account.

5. Users no longer needing their accounts will notify the Accounts Administrator immediately.

6. Users will notify the NCSC of any change in their employment status in order for the Accounts Administrator to validate their continued use of DOCKMASTER.

7. Contractor accounts will be deleted upon the completion of the contract.

8. Users will not copy software from DOCKMASTER without the written permission of the NCSC's Office of Computer Security Evaluations, Publications, and Support.

9. The NCSC andor employees of the NCSC will not be liable for the loss of any data caused either by user error or system malfunction.

10. It is mutually understood and agreed between the parties that no promise of of payment is made herein and this Memorandum of Agreement constitutes the total obligation of the parties. No other promises, either expressed or implied, are made or are to be imputed between them.

11. The Agency agrees to hold all properly marked and specifically identified proprietary information in the strictest confidence and to employ reasonable measures to prevent the unauthorized use thereof by the Agency or others, which shall not be less than those measures employed by any party in protecting its own proprietary information of equivalent value, so long as the Owner considers such data to be proprietary or until the Owner has released or permitted to be released the same or similar data to others without a corresponding restriction upon its dissemination except as required by statute, Executive Order, or regulation. It is further understood and agreed that no restriction shall be imposed upon the Agency to receive and freely disseminate, unless precluded by Executive Order, law or regulation, the same or similar data generated independently by the Agency or which is received or made available to the Agency from other sources.

12. No information acquired as a result of access to DOCKMASTER will be employed for profit or publication without the written approval of the NCSC.

13. The user agrees to abide by the attached Policy. (Dated July 1989)

I agree to abide by this Memorandum of Agreement knowing that any violation of the above will result in the deletion of my account.

Signature: _____ Date: _____

DOCKMASTER ACCESS AGREEMENT

DATE: MARCH 1988

NCSC DOCKMASTER ACCESS AGREEMENT: USER ACCOUNTS ON DOCKMASTER

This document details the agreement between the National Computer Security Center (NCSC) and the individual DOCKMASTER users.

1. The WATCHWORD GENERATOR will be used in conjunction with the normal login to gain access to the NCSC computer system, DOCKMASTER. Users registered on limited service projects will not be using a WATCHWORD GENERATOR.

2. Users should be aware that the WATCHWORD GENERATOR is the property of the United States Government, and as such should be used only to access DOCKMASTER.

3. Each user is responsible for the WATCHWORD GENERATOR assigned to them. Any device that is lost, stolen, or damaged should be reported immediately to the NCSC Computer Equipment Systems Security Officer (CESSO) for DOCKMASTER.

4. Each user is responsible for the protection of the Personal Identification Number (PIN) assigned to the WATCHWORD GENERATOR. Any suspected compromise should be reported immediately to the NCSC CESSO for DOCKMASTER.

5. Each user must promptly return the WATCHWORD GENERATOR to the NCSC once the associated DOCKMASTER account has been deleted. Any misuse of the WATCHWORD GENERATOR, or failure to return the WATCHWORD GENERATOR, upon the request of the NCSC, may be punishable under 18 U.S.C. section 641.

6. If a users DOCKMASTER account is terminated because of inactivity, the user will be notified to return the WATCHWORD GENERATOR promptly to the NCSC.

7. Without the NCSC receipt of this signed DOCKMASTER access agreement, a WATCHWORD GENERATOR WILL NOT be distributed, and currentnew accounts will be forfeited.

8. In addition to the detailed statements above, each user will be held responsi ble for the information originated on the Memorandum of Agreement dated July 1989 (ESTABLISHING NEW USER ACCOUNTS ON DOCKMASTER). 9. The user agrees to abide by this DOCKMASTER ACCESS AGREEMENT. (Dated March 1988)

I agree to abide by this DOCKMASTER ACCESS AGREEMENT knowing that any violation of the above will result in the confiscation of the WATCHWORD GENERATOR and the deletion of my account.

Signature: _____ Date: _____

PRIVACY ACT STATEMENT

AUTHORITY: 50 U.S.C. 402 (Note), E.O. 12333

PRINCIPLE PURPOSE: To allow the National Computer Security Center to manage information pertaining to a client's DOCKMASTER account.

ROUTINE USE: Dissemination within the National Computer Security Center.

DISCLOSURE OF INFORMATION: Disclosure of this information is voluntary.

EFFECTS OF NOT PROVIDING THE INFORMATION: Failure to provide the information requested could result in the inability of the National Computer Security Center to provide the client with a DOCKMASTER account.

INTRODUCTION TO THE U.S. GOVERNMENT PREFERRED PRODUCTS LIST

The U.S. Government Preferred Products List (PPL) is a list of commercially developed and produced TEMPEST telecommunications equipment which were accredited by the Countermeasures Advisory Panel (CAP) as compliant with all applicable TEMPEST requirements specified in the National TEMPEST Standard, NACSIM 5100( ), "Compromising Emanations Laboratory Test Standard, Electromagnetic (U)," dated March 1974, or the current version, NACSIM 5100A, dated 1 July 1981. AMSG 720B is the NATO equivalent of NACSIM 5100A. Products on this list were designed, developed, and manufactured by companies which were members of the National Security Agency's Industrial TEMPEST Program (ITP).

On 8 March 1988, the ITP was abolished and replaced by the TEP, which consists of three subprograms, the Endorsed TEMPEST Products Program (ETPP), the Endorsed TEMPEST Test Services Program (ETTSP), and the Endorsed TEMPEST Test Instrumentation Program (ETTIP). The new TEP emphasizes participation based upon individual product or service endorsement, vice company membership. Products endorsed under the auspices of the ETPP are listed on the Endorsed TEMPEST Products List (ETPL), not the PPL. Test Services endorsed under the auspices of the ETTSP are listed on the ETTSL.

NSA will continue to publish the PPL until January 1995 or until the PPL no longer includes products that are fully and currently accredited in accordance with the program procedures. The PPL will not, however, continue to be a dynamic document. Products will only be listed in their original configurations as published in the PPL as of January 1990. Companies will not be authorized to make any enhancements or additions to the products as listed. Should the companies desire to produce new products or make enhancements or additions to the PPL-listed products, they will be required to submit a product proposal in accordance with the requirements of the ETPP. Companies are invited to submit their PPL-listed products for evaluation under the auspices of the ETPP. PPL-listed products which satisfy the ETPP endorsement requirements will be included on the PPL and ETPL.

WARNINGS AND CAVEATS

a. The PPL is designed to assist U.S. Government buyers and users to identify commercially available equipment which meet the national TEMPEST standard. The PPL does not, however, constitute an inclusive list of products which meet

the national TEMPEST standard.

b. CAP Accreditation is limited to the specific product, manufacturer, and configuration of the product delineated on the PPL. Users of equipment are cautioned that similar products of other manufacturers or equipment deviating from the PPL configuration may not meet TEMPEST standards. Similarly, equipment/systems interconnecting with PPL-listed equipment may not meet TEMPEST standards. Users are therefore advised to consult with their TEMPEST authority before processing classified information on non-accredited equipment/systems.

c. By the definitions provided in the 1984 ITP Advertising Guidelines, the phrase "Designed to meet NACSIM 5100A" is to be used to describe products which will be advertised as containing TEMPEST control measures, but which have either not been TEMPEST tested at all or such tests have not been completed. Accordingly, a product advertised as "Designed to meet NACSIM 5100A" may indicate that the TEMPEST characteristics of the product have not been verified. Users requiring NACSIM 5100A-compliant equipment should only use products which have been fully tested to determine the product meets the national standard.

d. EXPORT CONTROL NOTE: TEMPEST equipment falls under the licensing jurisdiction of the Department of State, Category XI (C), Title 22 of Federal Regulations, Section 121.

e. The equipment on the PPL is listed by the name of the company which manufactured the TEMPEST version of the product and <u>not</u> by the Original Equipment Manufacturer (OEM).

OUTLINE OF SECTIONS

The PPL consists of six sections as follows:

a. Index (Section I) - A list of all equipment included in the PPL and sorted alphabetically by the TEMPEST manufacturer's name. A cross-reference can be made to other sections in the document for additional information on the equipment.

b. White Pages (Section II): A list of fully accredited products. Full accreditation is granted for the successful completion of a complete NACSIM 5100A test done on

a production unit during the first three months of production. A Quality Assurance Plan specifically tailored for the PPL item is required before full accreditation is granted.

c. Yellow Pages (Section III): A list of products removed from Section II due to recently discovered and NSA-confirmed TEMPEST deficiencies. Manufacturers have a maximum of six months to satisfactorily correct these deficiencies. Users of products listed in Section III are warned that deficiencies may exist and should contact the local Government TEMPEST authority for specific guidance regarding continued usage for processing classified information. NSA has initiated a TEMPEST deficiency alert program to notify TEMPEST authorities, by classified message, of the nature and extent of the deficiency to enable TEMPEST authorities to provide users specific guidance regarding continued use of the product. If the TEMPEST deficiency is satisfactorily resolved within the allotted time, the product will be relisted in Section II.

d. Blue Pages (Section IV): A list of products with suspended accreditation pending product accreditation termination and appeal. Suspension of accreditation means that the company cannot continue to advertise the product as CAP-accredited or take any new orders from U.S. Government departments and agencies which require a CAP-accredited product. The product remains in Section IV pending accreditation termination and appeal.

e. Red Pages (Section V): A list of products whose accreditation has been terminated because of unresolved deficiencies or failure to comply with program procedures or requirements. Users of such products should seek guidance from their TEMPEST authority.

f. Green Pages (Section VI): A list of products for which the Company has elected to permanently discontinue production.

ADMINISTRATIVE NOTES

a. Once a product is listed in Section V or VI, it will remain there for one year, after which it will be deleted from the PPL.

b. Products listed on the PPL are included in the NATO Recommended Products List (NRPL). The NRPL is available from the Government Printing Office (GPO).

c. Specific questions on a particular product should be directed to the manufacturer.

d. For further information concerning the Preferred Products List, contact:

Director
National Security Agency
ATTN: X512/TEMPEST
Fort George G. Meade, MD 20755-6000

JANUARY 1992 PPL ANNOUNCEMENTS

Announcements will be updated quarterly.

1. The following products have been dropped from Section VI:

a. Digital Equipment Corporation

(1) Model RF-824BB/RF-834BA Computer System
(2) Model RF-8800 VAXCluster

b. Hetra Computer & Communications Industries, Inc.

(1) Model 1200T Line Printer
(2) Model 855T Line Printer
(3) Model 6250T Tape Drive

c. Mitek Systems, Inc.

Model 150T Laser Printer

d. TEMPEST Technologies, Inc.

Model DWP 5155 Daisywheel Printer

2. The Electronic Bulletin Board System (EBBS) formerly used by the TEMPEST Endorsement Program Office for communications between this office and vendors has been discontinued. Any future communications will be conducted in writing or by telephone. Consult the address listed in the Administrative Notes section above.

MARKETING POINTS OF CONTACT FOR PRODUCTS LISTED ON THE JANUARY 1992 PREFERRED PRODUCTS LIST

ADC Telecommunications, Inc.
Government Business Unit
ATTN: Richard Dean
(612) 893-3625
4900 West 78th Street
Minneapolis, MN 55435

Advanced Control Device
Corporation
ATTN: William Sommer
(513) 252-2600
1415 East Second Street
Dayton, OH 45403-1022

Aura Technologies, Inc.
ATTN: Gene Mitchell
(703) 435-6736
121 Forest Ridge Drive
Sterling, VA 22170

C. R. International, Inc.
ATTN: Alan Belli
(301) 595-5350
P.O. Box 655
Beltsville, MD 20705

Candes Systems, Inc.
ATTN: Henry Snyder
(215) 256-4130
3131 Detweiler Road
Harleysville, PA 19438

Cryptek, Inc.
Division of General Kinetics Inc.
ATTN: Neel J. Price
(703) 478-7140
P.O. Box 365
Herndon, VA 22070

Dataproducts of New England,
Inc.
ATTN: Marie Barbour
(203) 265-7151x223
P.O. Box 30
Wallingford, CT 06492

Datasec Corporation
ATTN: Judy Figlioli
(603) 654-9700
P.O. Box 790
Wilton, NH 03086

Datawatch Corporation
ATTN: Alan MacDougall
(617) 932-0550
P.O. Box 847
Wilmington, MA 01887

Delta Data Systems Corp.
ATTN: Robert Mellott
(301) 290-6400
7175 Columbia Gateway Dr.
Columbia, MD 21046

Digital Equipment Corp.
Government Systems Group
ATTN: Mario Martinello
(603) 884-4375
MS MK02-1/K6
Digital Way, P.O.Box 9501
Merrimack, NH 03054

FiberCom, Inc.
ATTN: Jack Freeman
(703) 342-6700
P.O. Box 11966
Roanoke, VA 24022-1966

General DataCom Systems, Inc.
ATTN: Karen Dunathan
(813) 855-2620
450 Gim Gong Road
Oldsmar, FL 34677

GRiD Systems Corporation
ATTN: Patty Bergquist
(415) 656-4700
47211 Lakeview Blvd.
Fremont, CA 94538

Hetra Computer & Comm. Industries
ATTN: Dan Wonak
(407) 589-7331
P.O. Box 9000
Sebastian, FL 32958

Hughes Data Systems
ATTN: Paula J. Milano
(714)-693-5917
5601 East LaPalma Avenue
Anaheim, CA 92807

IBM Corporation
Systems Integration Division
ATTN: Robert J. Schumm
(301) 240-9900
800 North Frederick Ave.
Gaithersburg, MD 20878

ILEX Systems, Inc.
ATTN: Bob Robinson
(408) 945-0294
1423 S. Milpitas Blvd.
Milpitas, CA 95035

International Technology Corp.
ATTN: David J. Bloch
(703) 749-1200
P.O. Box 6250
1356 Beverly Road
McLean, VA 22106-6250

Mitek Systems, Inc.
ATTN: Glenn Ritzmann
(619) 587-9157
6225 Nancy Ridge Drive
San Diego, CA 92121

Mitek Systems, Inc.
Eastern Operations
ATTN: Glenn Ritzmann
(703) 318-7030-
P.O.Box 28
22879 Glenn Dr.
Sterling, VA 22170

North Atlantic Industries, Inc.
ATTN: Arthur Freilich
(516) 582-6500 x251
60 Plant Avenue
Hauppauge, NY 11788

Optelecom, Inc.
ATTN: Fred Eggleston
(301) 840-2121
P.O. Box 623
Gaithersburg, MD 20877

Secure Services Technology, Inc.
ATTN: Tom Soyka
(703) 709-7208
Suite 110
44901 Falcon Place
Sterling, VA 22170

Security Communications
of America, Inc.
ATTN: Ed Fox
(203) 269-1883
P.O. Box 4245
Yalesville Station
Wallingford, CT 06492

SFA, Inc.
ATTN: E.R. Freeman
(301) 925-9400 x101
1401 McCormick Drive
Landover, MD 20785-5396

Timeplex, Inc.
ATIN: Charles Dykas
(703) 385-3979
11166 Main Street
Fairfax, VA 22030

Titan Corporation
Titan Applications Group
ATIN: Terry Snyder
(703) 883-9200
1950 Old Gallows Road
Vienna, VA 22182

UNISYS Corporation
Federal Information Systems
ATIN: Steve Fitzgerald
(703) 556-5760
8008 W. Park Dr. 3rd Fl.
McLean, VA 22012

Versitron
Division of Shielding Systems Corp.
ATIN: William Carter
(301) 497-8600
9005-8 Junction Drive
Annapolis Junction, MD 20701

Wang Laboratories, Inc.
ATIN: Don Gangemi
(508) 967-4093
P.O. Box 8153
Lowell, MA 01853-3353

Zenith/INTEQ, Inc.
ATIN: David Garvis
(703) 471-1500
13860 Redskin Drive
Herndon, VA 22071

Alphabetical Listing of Equipment Categories

Adapter

Central Processing Unit

Computer

Computer System

Computer, Personal

Computer, Portable

Control Unit

Digitizer

Digitizer, Tablet

Disk Drive

Display

Facsimile

Interface, Communication

Interface, Fiber Optic

Modem

Mouse

Multiplexer

Network

Optical Character Reader

Plotter

Plotter, Color

Printer

Printer, Band

Printer, Daisywheel

Printer, Dot Matrix

Printer, Graphics

Printer, Ink Jet

Printer, Laser

Server Processor

Tape Drive

Tape Reader, Punched

Teleprinter

Terminal

Workstation

SECTION I

JANUARY 1992 PREFERRED PRODUCTS LIST INDEX

Manufacturer City, State	Equipment Category	Model Number	Section
ADC Telecommunications, Inc. Minneapolis, MN	Adapter	FPA-xxx	II
	Interface, Fiber Optic	Fiber Mate System	II
Advanced Control Device Corp Dayton, OH	Tape Reader, Punched	5120	II
Apollo Computers, Inc. North Billerica, MA	Workstation	TDN3000	VI
Aura Technologies Inc. Sterling, VA	Mouse	M4-T	II
C. R. International, Inc. Beltsville, MD	Adapter	DAC-24T	II
	Computer, Personal	PW2 500/12T	VI
Candes Systems, Inc. Harleysville, PA	Computer, Personal	TPI-863-T	VI
	Display	2019T	II
	Display	2119T	II
Contel Federal Systems, Inc. Westlake Vil., CA	Workstation	AN/UYQ-47(V)	VI
CPT Corp. Minneapolis, MN	Display	DSP-14B	V
	Printer, Dot Matrix	DM 245T	VI
Cryptek, Inc. Herndon, VA	Facsimile	TS-10	II
Dataproducts New England Wallingford, CT	Adapter	CAU 4100	II
	Adapter	FPA-4x00	II
	Control Unit	MC3-188/114	II
	Multiplexer	2048AT-16	II
	Multiplexer	2048AT-32	II
	Printer	MXT-1200C	II
	Printer	MXT-1200VE	II

Manufacturer City, State	Equipment Category	Model Number	Section
Dataproducts New England Wallingford, CT			
	Printer, Band	TB1000	II
	Printer, Band	TB600	II
	Printer, Dot Matrix	TCG-200	II
	Printer, Dot Matrix	TCG-202	II
	Printer, Dot Matrix	TG-200	II
	Teleprinter	MXT-1200 KSR	II
Datasec Corp. Wilton, NH			
	Computer, Personal	DAT-286	II
	Computer, Personal	DIM-110	II
	Disk Drive	DSD-210(220)	II
	Display	DSM-120	II
	Printer, Dot Matrix	DSP-225-232	II
	Printer, Ink Jet	DSP-225-111	II
	Printer, Ink Jet	DSP-225-488	II
	Terminal	DST-220	II
Datawatch Corp. Wilmington, MA			
	Digitizer, Tablet	DATAWATCH 1201	II
	Printer, Ink Jet	DATAWATCH 150	II
	Terminal	DATAWATCH 240	II
	Workstation	DATAWATCH 386/16	II
	Workstation	DW286/16-ST506	II
Delta Data Systems Corp. Columbia, MD			
	Computer, Personal	8700T-PC	II
	Computer, Personal	TOTE PC	II
	Mouse	T87-610	II
	Printer, Dot Matrix	FX-85T	II
	Printer, Graphics	DD3184	II
	Printer, Graphics	DD3304	II
	Printer, Graphics	DD3404	II
	Terminal	8260AT and 8260T	II
	Terminal	DD 220T	II
Digital Equipment Corp. Nashua, NH			
	Computer System	RF-630QZ-AA/CA	II
	Interface, Fiber Optic	RF-FOAFB/MB-AA	II
	Network	RF-H4000	II
	Printer, Dot Matrix	RF-LA1DR-AA/BA	II
	Printer, Laser	RF-LN03()-()()	II
	Server Processor	RF-DSRVX-XX	II
	Terminal	RF-VT240-AA/-BA	II
	Terminal	RF-VT320-AA	II
	Workstation	RF-PV01X-XX	II
FiberCom, Inc. Roanoke, VA			
	Interface, Communication	WhisperLAN/T	II

Manufacturer City, State	Equipment Category	Model Number	Section
FiberCom, Inc. Roanoke, VA	Interface, Fiber Optic	Whisperphone I	II
	Modem	TFM-9600	VI
General DataComm Sys., Inc. Middlebury, CT	Multiplexer	Megaswitch TMP	II
GRiD Systems Corp. Fremont, CA	Computer, Portable	1307	II
	Disk Drive	2107	VI
Hetra Computer & Comm. Ind. Sebastian, FL	Computer, Personal	105T	II
	Display	4902T	II
	Optical Character Reader	9050T	II
Hewlett Packard Company Palo Alto, CA	Printer, Laser	HP 33440x-T	VI
IBM Corp. Durham, NC	Display	3278RC Model 2	VI
	Printer	IBM 3812	VI
IBM Corp. Gaithersburg, MD	Computer, Personal	4455	II
	Computer, Personal	4459	II
Ilex Systems, Inc. Milpitas, CA	Digitizer	VDC 4824T	II
	Optical Character Reader	2000T Series	II
International Tech. Corp. McLean, VA	Computer, Personal	ITC P386-T	II
	Computer, Personal	ITC PC-AT-T	VI
	Computer, Personal	ITC PC-XT-T	VI
	Computer, Personal	ITC PS2-30-T	II
	Computer, Personal	ITC PS2-50-T	II
	Network	ITC LAN-HUB-T	II
	Plotter, Color	ITC 10T	III
	Printer, Dot Matrix	ITC 50-T	VI
Mitek Systems, Inc. San Diego, CA	Facsimile	850T	II
	Interface, Communication	810T	II
	Printer, Laser	120T	VI
	Printer, Laser	125T	VI
Mitek Systems, Inc. Sterling, VA	Computer, Personal	T5240	VI

Manufacturer City, State	Equipment Category	Model Number	Section
Mitek Systems, Inc. Sterling, VA			
	Computer, Personal	T5270	VI
	Display	T5119	II
	Optical Character Reader	T5176	II
	Tape Reader, Punched	T5104	II
North Atlantic Ind., Inc. Hauppauge, NY			
	Printer, Dot Matrix	7020T	VI
	Printer, Dot Matrix	7035T	VI
	Printer, Dot Matrix	P5-T	VI
	Printer, Laser	KISS plus T	VI
	Printer, Laser	Laser II-T	II
	Printer, Laser	PS 810-T	II
Optelecom, Inc. Gaithersburg, MD			
	Modem	4131PT/4131ST	II
Optical Data Systems, Inc. Richardson, TX			
	Interface, Fiber Optic	ODS 108-M, 108-F	VI
	Interface, Fiber Optic	ODS 235	VI
	Modem	ODS 411	VI
	Multiplexer	ODS 314	VI
	Multiplexer	ODS 817	VI
	Network	ODS 240	VI
Secure Services Tech., Inc. Falls Church, VA			
	Facsimile	SST-T1	II
Security Comm. of America Wallingford, CT			
	Printer, Dot Matrix	EX-1000T	II
SFA, Inc. Landover, MD			
	Plotter	SFA 1401-T	II
TEMPEST Tech., Inc. (T2I) Herndon, VA			
	Computer, Personal	XTRA 286TX	VI
	Plotter	WG3200T	VI
	Printer	LPF5600	VI
	Printer	LPM5300	VI
	Printer, Daisywheel	760T	VI
	Printer, Dot Matrix	1020T	VI
	Printer, Dot Matrix	SLP3184	VI
	Printer, Dot Matrix	SLP3304	VI
	Printer, Dot Matrix	SLP3404	VI
Time and Space Proc. Inc. Sunnyvale, CA			
	Facsimile	9100	VI

Manufacturer City, State	Equipment Category	Model Number	Section
Timeplex, Inc. Woodcliff Lake, NJ			
	Multiplexer	TLM-LINK T1	IV
Titan Corporation Vienna, VA			
	Control Unit	BASIQ-1821-T	II
	Interface, Communication	1800-T	II
UNISYS Corp. Salt Lake City, UT			
	Computer System	System-11	II
	Computer, Personal	T3143-82	II
	Computer, Personal	T3143-88	II
	Printer, Dot Matrix	25B	II
	Terminal	T3560-23	II
	Terminal	T3622-99	II
Versitron Annapolis Junct, MD			
	Interface, Fiber Optic	M11X0S	II
Wang Labs, Inc. Lowell, MA			
	Central Processing Unit	75XXAT	II
	Computer	PC-XC5-3T	II
	Computer System	7585VST-x	II
	Computer System	VS5-xT	II
	Computer System	VS6-xT	II
	Computer System	VS65-xT	II
	Computer System	VS75E-xT	II
	Computer, Personal	APC-PM46T	II
	Computer, Personal	PC-XC1-3T	II
	Computer, Personal	PC-XC2-3T	II
	Computer, Personal	PC-XC4-3T	II
	Computer, Personal	PC280-1AT	II
	Computer, Personal	PC280-1T	II
	Computer, Personal	PC280-2T	II
	Computer, Personal	PC280-4T	II
	Computer, Personal	PC381-T/PC382-T	II
	Computer, Personal	XAPC-S1T	II
	Computer, Personal	XAPC-S2T	II
	Computer, Personal	XAPC-S3T	II
	Computer, Personal	XAPC-ST	II
	Disk Drive	2269V-3T	II
	Disk Drive	2269V-4T	II
	Disk Drive	7565-2T	II
	Disk Drive	7565V-2T	II
	Disk Drive	YT1-7595(V)-CxT	II
	Display	75PC-PM101T	II
	Display	MON-1450-PC2T	II
	Interface, Communication	3278/79-EMUL-T	II
	Interface, Communication	6554-1T	II
	Interface, Communication	6554-2T	II

Manufacturer City, State	Equipment Category	Model Number	Section
Wang Labs, Inc. Lowell, MA			
	Interface, Communication	7561T	II
	Interface, Communication	WACS-XXT	II
	Interface, Fiber Optic	FiberWay	II
	Interface, Fiber Optic	FO-MC-1TA	II
	Interface, Fiber Optic	FO-MC-IT	II
	Printer, Band	7574-1T	II
	Printer, Daisywheel	7582T DSF-1T	II
	Printer, Daisywheel	DW/OS-60AT	II
	Printer, Daisywheel	DW/OS-60T	II
	Printer, Daisywheel	PMO18-T	II
	Printer, Dot Matrix	75PC-PM16T	II
	Printer, Laser	75LIS-12xT	II
	Printer, Laser	LCS15-DSK-T	II
	Printer, Laser	LCS15-SYS-T	II
	Printer, Laser	LDP8-DSK-T	II
	Tape Drive	2238V-1T	II
	Tape Drive	2248V-1T	II
	Tape Drive	7529T	II
	Workstation	4230-OA-T	II
	Workstation	4230-VS-T	II
	Workstation	4230TC-T	II
	Workstation	7501-OA-T	II
	Workstation	7501-VS-T	II
	Workstation	APC-IWST	II
Xerox Corp. Sunnyvale, CA			
	Network	8033T/60HZ	VI
	Network	8046T/60HZ	VI
	Workstation	6085T	VI
Zenith/INTEQ, INC. Herndon, VA			
	Computer, Personal	ZVC-0003-AA	II

SECTION II

JANUARY 1992 PREFERRED PRODUCTS LIST

ACCREDITED EQUIPMENT AND SYSTEMS

Equipment Category	Manufacturer City, State Description	Model Number
Adapter	ADC Telecommunications, Inc. Minneapolis, MN Crypto Fixed Plant Adapters FPA-001 Dual Channel Unit FPA-101 Single Channel Unit	FPA-xxx
Adapter	C. R. International, Inc. Beltsville, MD The DAC-24T Data Adapter/Converter provides signal conversion for EIA-RS-232C/D and MIL-188C signals to MIL-STD-188-114 OR RS-422 interface specifications with pin assignment in accordance with EIA-530. The DAC-24T is transparent to external devices and provides regeneration and signal inversion. The DAC-24T operates at a maximum of 307.2 kBps on the balanced ports and 9.6 kBps on the unbalanced ports	DAC-24T
Adapter	Dataproducts New England Wallingford, CT CAU 4000 Crypto Auxiliary Unit CAU 4100 Single Channel Unit CAU 4200 Dual Channel Unit	CAU 4100
Adapter	Dataproducts New England Wallingford, CT Crypto Fixed Plant Adapters FPA-4100 Single Channel FPA-4200 Dual Channel	FPA-4x00
Central Processing Unit	Wang Labs, Inc. Lowell, MA Model Nos: 7515AT 8-port OIS CPU 7535AT 16-port OIS CPU 7540AT 32-port OIS CPU 7550AT 32-port with 128kB Memory Options: OIS 1000 Turbo Upgrade to 7550AT EM-OIS-T Extended Memory Option for 64kB OIS CPUs	75XXAT

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued)	75XXAT
	(extends 64kB memory to 128kB)	
	TC-AC-2T Asynchronous Internal Telecommunications Controller (second channel)	
	TC-SC-2T Synchronous Internal Telecoommunications Controller	
	TC1T 128kB Internal Data Communications Controller. Two TC1T controllers are installable per CPU and each requires an optional connector and front panel as in the TCT Controller.	
	TCT 64kB Internal Data Communications Controller. Two TC1T controllers are installable per CPU and each requires an optional connector and front panel.	
	Optional Connectors Include:	
	CN-RS232T	
	CN-RS449T	
	CN-RS366T	
	CN-X21T	
	Optional Front Panels Include:	
	OIS-FP1T for 1st Controller	
	OIS-FP2T for 2nd Controller	
Computer	Wang Labs, Inc. Lowell, MA	PC-XC5-3T
	Professional Computer with eight slots, 512kB single diskette drive, 20MB fixed Winchester drive, IBM emulation, monitor, keyboard, MS-DOS and interpretative BASIC. Upgradeable to XAPC-ST and XAPC-SxT series of TEMPEST APCs. Accredited in multiple language character set versions in addition to the standard versions.	
	The following options are available on the PC-XC1-T through PC-XC5-T models:	
	75PC-PM02T Graphics Card	
	75PC-PM14T PC RS-232 Daisy Printer	
	75PC-PM16T 160 CPS Printer	
	75PC-PM20T Diskette Drive	
	75PC-PM21CT 10MB Removable Disk Drive	
	75PC-PM40T Remote TC Option	
	75PC-PM141-VST VS Local Communications Option	
	75PC-PM141-OAT OIS/Alliance Local Communications Option	
	75PC-PM42T Multiport Communications Option	
	75PC-PM100T Keylock on/off switch	
	75PC-PM101T Wang/IBM Emulation Monochrome Monitor Card	
	75PC-MOUSE-T Wang 7500T PC Mouse	
	75PC-PSDT Printer Sharing Device	

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued)	PC-XC5-3T
	75PC-PM21AT	10MB Fixed Media Disk Drive
	75PC-PM30T	Memory Expansion Card (128kB)
	75PC-PM31T	Memory Expansion Card (256kB)
	75PC-PM32T	Memory Expansion Card (512kB)
Computer System	Digital Equipment Corp. Nashua, NH Microvaxll in H9633 RFI/EMI Cabinet with 1MB memory; MS630-BB 4MB Memory Expansion (two maximum) or MS630-CA 8MB Memory Expansion (two maximum). Included Options: RQDX3-M Disk Drive Controller RF-RD54-AB 159MB Removable 5-1/4" Hard Disk (maximum of four) RF-RD53-AB 71MB 5-1/4" Removable Hard Disk (maximum of four) RX50-AA 409kB Floppy Disk Drive TK50-AA 5-1/4" 95MB Streaming Tape Drive TQK50-AA TK50 Controller BA23-CA Rackmount Box, 8-slot backplane RF-DEQNA-KA ETHERNET Controller and Fiber Optic Converter RF-DHV11-AA Filtered 8-Line Asynchronous Multiplexer RF-DZQ11-DA Filtered 4-Line Asynchronous Multiplexer RF-DPV11-AA Filtered RS232 Single Line Synchronous Controller RF-VT240-AA Console Terminal RF-DELQA-KA ETHERNET Controller and Fiber Optic Converter RF-DHQ11-AA Communications Controller with 8 asynchronous lines 95MB Streaming Tape Drive TQK50-AA TK50 Controller BA23-CA Rackmount Box, 8-slot backplane RF-H3041-AA Station Interface Unit required for ETHERNET	RF-630QZ-AA/CA
Computer System	UNISYS Corp. Salt Lake City, UT System 11 is mini/midi sized 1100 processor system. It consists of basic and expansion central complex cabinets. The expansion cabinet allows for additional processors and expanded I/O capability. Peripherals included: Fixed Disk Subsystem Removable Disk Subsystem Peripheral Cabinet containing a magnetic tape subsystem Types & features associated with the System 11 & peripherals: T3065-75 EMC System-11 Enhanced Dyadic (60 Hz).	System-11

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued)	System-11
	Hardware supplied includes:	
	K3649-03 Instruction Processor (two)	
	K3653-03 MSU Control 1024KW Memory (two)	
	F4257-03 Disk Controller Channel II (two)	
	F3651-01 Byte Bus Channel	
	F3674-99 Integrated Tape Control Unit	
	T2054-99 Block Mux Channel	
	F3672-99 Printer Control Unit	
	T2006-98 Integrated Communications Processor II	
	F3648-01 System Support Processor	
	F3726-00 L-Bus Adapter	
	F3714-00 Console Control Unit	
	Optional Hardware for Expansion includes:	
	K3649-03 Expansion Processors (maximum of two)	
	K3653-03 MSU with 1024KW Memory (maximum of two)	
	T3066-98 EMC Expansion Cabinet	
	F3651-98 Second Byte Bus Channel	
	T2054-99 Second Block Mux Channel	
	F4257-03 Disk Controller Channel II (maximum of two)	
	F3163-98 Medium Speed Loadable Line Module (RS-449)	
	F3163-99 Medium Speed Loadable Line Module (RS-232C)	
	F3165-99 Multiline Async Line Module	
	F3837-98 Multiline Sync Line Module	
	F3725-00 L-Bus Power Expansion	
	T3065-74 EMC System-11 Enhanced Dyadic (50 Hz)	
	Same hardware as above.	
	T1974-99 EMC Peripheral Cabinet (50/60 Hz)	
	Houses up to two EMC Streaming Tapes (T2014-97)	
	Hardware Supplied:	
	K3782-01 Streaming Tape Drive	
	K3930-01 Remote Power Sequencer	
	T2014-95 EMC Second Streaming Tape Drive	
	Hardware Supplied:	
	K3782-01 Streaming Tape Drive	
	T2014-96 EMC Streaming Tape Drive	
	Hardware Supplied:	
	K3782-01 Streaming Tape Drive	
	T8451-99 EMC Cabinet with two Fixed Disk Drives and two Control Modules. (50/60 Hz).	
	Optional hardware includes:	
	F4332-00 Dual Access	
	F4329-00 Disk Drive Expansion (maximum of two)	
	T8463-99 EMC Cabinet with one removable Disk Drive and one Control Module (50/60 Hz)	
	Optional hardware includes:	
	F4640-00 Disk Drive Expansion (maximum of three)	

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued)	System-11
	T8596-75 EMC Distributed Communications Processor/40 (DCP/40) 50/60 Hz	
	Necessary Hardware includes:	
	F1939-00-01 Integrated Disk Control, 60/50 Hz	
	F1947-05 Byte Channel Line Module	
	T8441-76/77 EMC 30MB Mass Storage, 60/50 Hz	
	Optional Hardware for Expansion includes:	
	K1930-01 512kB Memory Expansion	
	F2941-99 Second I/O Processor	
	F1932-99 Third I/O Processor	
	F1932-98 Fourth I/O Processor	
	F3164-98 EMC High Speed Line Module (RS-449)	
	F3163-99 EMC Medium Speed Loadable Line Module (RS-232)	
	F3163-98 EMC Medium Speed Loadable Line Module (RS-449)	
	F3165-99 EMC RS-232 Multiline Asynchronous Line Module	
	F3837-98 EMC RS-232 Multiline Synchronous Line Module	
Computer System	Wang Labs, Inc. Lowell, MA	7585VST-x
	7585VST-x series 32-Bit virtual memory computer system. Standard configurations include 32-bit CPU with indicated main system memory, 32kB Cache memory. 16-port serial IOP with two electrical APAs (E-APA-T), one archiving workstation (7501-VS-T) with hard sector/soft sector controller, one 4-port disk drive IOP (75V03T), and one bus adapter. Operating system and Assembler are also standard.	
	Standard product configurations are:	
	7585VST-1 with 2MB system main memory	
	7585VST-2 with 4MB system main memory	
	7585VST-3 with 8MB system main memory	
	Options to above products include:	
	75V01T 16-Port Serial I/O Processor	
	75V02T 32-Port Serial I/O Processor	
	75V03T 4-Port Disk Drive I/O Processor	
	75V04T 3-Port Telecommunications I/O Processor	
	E-APA-T 8-Port Electrical Active Port Assembly	
	22V15-2T Input/Output Processor	
Computer System	Wang Labs, Inc. Lowell, MA	VS5-xT
	VS5-xT virtual memory computer system. Standard system configurations include indicated main memory, 1.2MB	

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) diskette drive, 16 serial ports, SCSI port, and asynchronous printer ports for DP only printers. Standard product configurations are: VS5-1T CPU with 1MB Main Memory VS5-2T CPU with 2MB Main Memory Packaged configurations include indicated main memory, portable disk drive and a streaming cartridge tape drive. Packaged product configurations are: VS5-1CTT CPU Includes 1MB memory, 71MB portable Winchester drive, & streaming cartridge tape drive VS5-1DTT CPU Includes 1MB memory, 142MB portable Winchester drive, & streaming cartridge tape drive VS5-2DTT CPU Includes 2MB memory, 142MB portable Winchester drive, & streaming cartridge tape drive Options to above products include: 25V50-4AT 4-Port Disk Drive Controller 25V76-2AT 2-Port Telecommunications Controller with controller board, half panel, & connector options (VCN-RS232T, VCN-366T, & VCN-X21T)	VS5-xT
Computer System	Wang Labs, Inc. Lowell, MA VS6-xT virtual memory computer system. Standard system configurations include indicated main memory, 1.2MB diskette drive, 16 serial ports, 16kB Cache Memory, SCSI port, and asynchronous printer ports for DP only printers. Standard product configurations are: VS6-1T CPU with 1MB Main Memory VS6-2T CPU with 2MB Main Memory VS6-4T CPU with 4MB Main Memory Package product configurations include indicated main memory, portable Winchester disk drive and streaming cartridge tape drive. Packaged product configurations are: VS6-1CIT CPU - Includes 1 MB memory, 71MB portable Winchester drive, & streaming cartridge tape drive VS6-1DIT CPU - Includes 1MB memory, 142MB portable Winchester drive, & streaming cartridge tape drive VS6-2DIT CPU - Includes 2MB memory, 142MB portable Winchester drive, & streaming cartridge tape drive VS6-4DIT CPU - Includes 4MB memory, 142MB portable Winchester drive, & streaming cartridge tape drive Options to above products include: 25V50-4AT 4-Port Disk Drive Controller	VS6-xT

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) 25V76-2AT 2-Port Telecommunications Controller with controller board, half panel, & connector options (VCN-RS232T, VCN-RS366T, and VCN-X21T)	VS6-xT
Computer System	Wang Labs, Inc. Lowell, MA VS65-xT series 32-bit virtual memory computer system. Standard system configurations include CPU with indicated main system memory, 16kB Cache memory, 360kB DSDD diskette drive, 32-port serial device controller (25V67T) with 16 ports provided. Operating system and Assembler are also standard. Standard product configurations are: VS65-2T with 2MB system main memory VS65-4T with 4MB system main memory Options to above products include: 25V67T 32-Port Serial I/O Processor E-APA-T Electrical Active Port Assembly 25V50-4AT 4-Port Disk I/O Processor 25V76-2AT 2-Port Telecommunications Processor Connector options include: VCN-RS232T, VCN-RS366T, and VCN-X21T	VS65-xT
Computer System	Wang Labs, Inc. Lowell, MA The VS75E-xT is a high performance 32-bit VS CPU capable of supporting up to 96 user devices, including up to 64 electrical or fiber optically connected workstations. From 2MB to 8MB main memory configurations are available with 32kB of high speed cache. The system features a built-in 5-1/4" floppy disk drive and bus processor support for one to four portable, shock-mounted 72MB or 142MB Winchester type drives as well as support for external disk and tape storage devices. Configuration Tested: VS75E-8T with optional SCSI interface, high speed disk controller (25V48-4T), UISIO (extra 928 Data Link ports, 25V67T), and serial/parallel ports (25V76-2AT, VCN-RS232T, VCN-RS366T, and VCN-X21T)	VS75E-xT
Computer, Personal	Datasec Corp. Wilton, NH Personal Computer System, using 80286 8 MHz microprocessor, 512kB, 600kB, or 1MB RAM. (OEM is Tandon AT). Options: DSC-143 Color Monitor (OEM is NEC Multisync) Datasec DSM-120 Monochrome Monitor (OEM is NEC)	DAT-286

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued)	DAT-286
	Paradise Monochrome Card	
	DSD-210/DSD-220 Dual 10MB or 20MB IOMEGA Cartridge removable disk drive (Bernoulli Technology)	
	I/OMEGA SCSI Interface Card	
	1.2MB and/or 360kB Floppy Disk Drive	
	20, 30, 40, 60, 85, 144MB Removable Winchester Hard Disk Drive	
	AMI Serial/Parallel I/O Card	
	AMI 3MB RAM Extended Memory Card	
	Mouse (OEM is Maynard)	
	Computone ATvantage 4-Port Card	
	TecMar EGA Card (provides high resolution graphics with 640x350 pixel resolution)	
	Half Pint Serial/Parallel I/O Card (OEM is Computer Peripherals)	
	Opus 32.16 Unix System V Personal Mainframe available with 321 Memory Card Extension	
	Opus 32.32 Unix System V Personal Mainframe available with 321 or 323 Memory Card Extension	
	80287 Math Co-processor	
	IBM EGA Card	
	60MB Archive Streamer Tape Drive	
	Excelan EXOS 205E Ethernet Controller Card	
	Half Pint Plus	
	Tecmar VGA Display Adapter	
	VIP-1200 Plug-in Cards (IEV 1220 and 2020)	
	OPTION A	
	Intel SBC386ATZ-16MHz 80386 Microprocessor with 2MB RAM and Parallel Printer Port	
	Intel 80387 Math Coprocessor	
	Intel SBC386MEM020 2MB Memory Expansion	
	Intel SBC386MEM080 8MB Memory Expansion	
	Western Digital WD1006V-SM2 Hard/Floppy Drive Controller	
	Fujitsu M2537K 3.5" 1.44MB Floppy Drive	
	Fujitsu M2553K 5.25" 1.2MB Floppy Drive	
	Key Tronic 101 Key Keyboard Model E03417201	
	Tecmar VGA Display Adapter	
	85MB Removable Hard Disk Drive (Micropolis)	
	Computer Peripherals Half-Pint Plus I/O Adapter	
	DSC-143 Color Monitor	
	OPTION C	
	80386 Processor Card (MCC)	
	80387 Coprocessor (Intel)	
	4MB Memory Card (AMI)	
	1.2MB Floppy Disk (Fujitsu)	

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) 360kB Floppy Disk (Fujitsu) 85MB Hard Disk (Micropolis) Serial/Parallel Port Card (CPI) 101-Key Extended Keyboard (Keytronics) VGA Card (Tecmar)	DAT-286
Computer, Personal	Datasec Corp. Wilton, NH Apple Macintosh II Personal Computer with 68020 CPU and 68881 co-processor, up to 8MB of on-board RAM, 800kB floppy drive, Apple extended keyboard, 20MB external removable hard disk, mouse, printer and modem ports, external SCSI port, video card with 512kB RAM Options: 40MB removable hard drive 80MB removable hard drive 2,3,4,5,6,7,8MB RAM Second external removable hard disk Second 800kB 3.5" floppy drive Sony monochrome monitor	DIM-110
Computer, Personal	Delta Data Systems Corp. Columbia, MD An IBM AT-compatible personal computer with either an 80386 or 80286 based plug-in CPU board & with numerous standard features & options: Standard Features: - 230W Power Supply (110/220V, 50/60Hz) - 12-slot Backplane - Real Time Clock - Two RS-232/MIL-188C Serial Ports - One Centronics-compatible Parallel Port Options: 8700T-32 25MHz 80386 CPU Plug-in Board with 8MB Memory 8700T-31 25MHz 80386 CPU Plug-in Board with 4MB Memory 8700T-23 16MHz 80386 CPU Plug-in Board with 16MB Memory 8700T-22 16MHz 80386 CPU Plug-in Board with 8MB Memory 8700T-21 16MHz 80386 CPU Plug-in Board with 4MB Memory 8700T-13 16MHz 80386 CPU Plug-in Board with 4MB Memory 8700T-12 16MHz 80386 CPU Plug-in Board with 2MB Memory 8700T-11 16MHz 80386 CPU Plug-in Board with 1MB Memory 8700T-02 8/12MHz 80286 CPU Plug-in Board with 4MB Memory 8700T-01 8/12MHz 80286 CPU Plug-in Board with 1MB Memory T87-214 80387 Coprocessor for 80386 CPU (25 MHz) T87-213 80387 Coprocessor for 80386 CPU (16 MHz) T87-211 80287 Coprocessor for 80286 CPU T87-320 EEMS 1MB Memory Expansion Board	8700T-PC

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued)	8700T-PC
	T87-321	EEMS 2MB Memory Expansion Board
	DM-1440	14" Multi-sync EGA Color Monitor (110/120V)
	DM-1442/3	14" Multi-sync EGA Color Monitor (110V Only)
	DM-1444	14" Multi-sync EGA/VGA Color Monitor (110 Only)
	DM-1445	14" Multi-sync EGA/VGA Color Monitor (110/220V)
	DM-1450	14" VGA Color Monitor (110/220V)
	DM-1455	14" Multi-sync EGA/VGA Color Monitor (110/220V)
	DM-1411	14" Monochrome CRT Monitor (DC)
	DM-1420	14" Monochrome CRT Monitor (AC)
	DM-1940T	19" High Resolution Color Monitor
	DA19-03/4	1280 x 1024 Resolution Video Controller (256 Colors)
	DA14-26	VGA-compatible Video Adapter
	DA14-25	Video Adapter - 640 x 480 x 256 Colors Resolution
	DA14-23	EGA-compatible Video Adapter
	DA14-21/4	Monochrome/Graphics Video Adapter
	T87-180/1	1.2MB, 5-1/4" Floppy Disk Drive
	T87-190/1	360kB, 5-1/4" Floppy Disk
	T87-130/1	1.4MB 3-1/2" Floppy Drive
	T87-135/6	720kB 3-1/2" Floppy Drive
	T87-145	330MB Removable Hard Disk Drive (ESDI)
	T87-150	110MB Removable Hard Disk Drive
	T87-155	170MB Removable Hard Disk Drive
	T87-140	80MB Removable Hard Disk Drive
	T87-120	40MB Removable Hard Disk Drive
	T87-710	Controller, Floppy/Hard Disk, ST-506
	T87-720	Controller, Floppy/Hard Disk, ESDI
	T87-730	Controller, Cartridge, SCSI
	T87-172/4	44.5MB Cartidge Disk Drive with SCSI Controller
	T87-176	Dual 44.5MB Cartridge Disk Drive with SCSI Controller
	T87-170	20MB Cartridge Disk Drive
	T87-510	60MB Streaming Tape Drive
	T87-400	Serial/Parallel Adapter
	T87-070-2	3270 Coaxial Emulation I/O Adapter
	T87-420/1	4-port Asynch RS-232/MIL-188C Adapter
	T87-410	Synchronous Serial Port (RS-232 or MIL-188C)
	N87-110	LAN (Ethernet) - (DOS)
	N87-111	LAN (Ethernet) - Intelligent (DOS)
	N87-112	LAN (Ethernet) - Intelligent (UNIX)
	N84-008	Ethernet LAN Transceiver (Coaxial)
	N87-101	Ethernet LAN Transceiver (Fiber Optic)

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued)	8700T-PC
	T87-080	8765PCT-AT Option (80286 CPU)
	T87-081	8865PCT-AT Option (80386 CPU)
	T87-610	Mouse, 3-button, RS-232 Serial
	T87-612	Mouse, 2-button, HI-RES Optical, RS-232 Serial
	KB-084T	84-key AT-compatible Keyboard
	KB-101T	101-Key Enhanced AT-compatible Keyboard
	T87-620/1	CAD Package Security Device
	T87-625	Data Encryption Board
Computer, Personal	Delta Data Systems Corp. Columbia, MD Transportable PC/XT Compatible TEMPEST Personal Computer Standard features: 8088 Central Processing Unit, 4.77MHz 640kB RAM 6 Expansion Slots Electro-luminescent (EL) Display PC-compatible Keyboard 360kB Floppy Disk Drive 10MB Removable Cartridge Disk Drive RS-232/MIL-188 Serial I/O Port Parallel Printer Port Rack Mountable	TOTE PC
Computer, Personal	Hetra Computer & Comm. Ind. Sebastian, FL Personal Computer Special Features: - 80286 Plug-in Processor 6-10MHz with 80287 Math Co-processor - 64kB ROM, 1MB On-board RAM - 360kB or 1.2MB Floppy Drives - 20MB and 40MB Removable Hard Drives - Monochrome and Color Display Adapters - Two Serial and One Parallel IBM PCAT Compatible Ports - Detachable 101-Key IBM PCAT Enhanced Keyboard - 12 Expansion Slot Backplane - 220 Watt Power Supply Options: - Toshiba, Model ND-322, 3.5" Floppy Disk Drive - IOMEGA, Model Beta 20, Disk Drive with Integrated SCSI Controller - IOMEGA SCSI Adapter, Model PC3/PC3B - CPT Corporation, Model BBGA, Bridge Board Graphics Adapter	105T

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) - Western Digital, WD-1002-27X, RLL Hard Disk Controller - Seagate, ST-238, RLL Disk Drive - Hetra, 286 Memory, Memory Expansion Board - IMAgraph, Advanced Color Graphics Controller - IMAgraph, Switched Enhanced Graphics Adapter - Excelan, Model EXOS205, Intelligent Ethernet Control Card - CDC, Model 94355, Hard Disk Drive - Microtek, Model MS-PCE, Parallel Interface for Scanner - Irwin, Model 265, Tape Unit - Hetra, Model 80386, Microprocessor Board - Harris/Lanier Network Interface Card 188 - Everex, Model 659A, Video Controller - Seagate, Model ST-251-1, Hard Disk Drive - Irwin, Model 285, Tape Unit - Western Digital, Model WD1003V-SM1, Hard Disk Controller - Hetra, Model 101-1T, PCAT Enhanced Keyboard - CPT, Model 700250, PCAT Enhanced Keyboard	105T
Computer, Personal	IBM Corp. Gaithersburg, MD TPC 2 TEMPEST Personal Computer (IBM 5160 PC XT); System Unit with 64kB ROM, 256kB RAM; 120 or 220 VAC, 50 or 60 Hz. TPC Keyboard II, 83 Keys, English/ Cyrillic. Options: 256kB RAM Expansion 360kB Diskette Drive Second 360kB Diskette Drive 10MB Fixed Disk Drive Two 5MB Internal Removable Hard Disks 8087 CO-Processor MIL STD Communications Adapter Asynchronous Communications Adapter SDLC Communications Adapter 3278/79 Emulation Adapter Parallel Printer Adapter Monochrome Display and Printer Adapter Color Graphics Monitor Adapter Downloadable Character Display and Printer Adapter Advanced MIL-STD Communications Adapter External Dual Hard Disk Drives External Tape Backup Unit Improved Downloadable Character Display Printer Adapter	4455

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) 132 Character Capability Two 10MB Internal Removable Hard Disk Drives Model 4451 TPC Display I Model 4451-4 TPC Display I Model 4453 TPC Color Display	4455
Computer, Personal	IBM Corp. Gaithersburg, MD TPC 4 TEMPEST Personal Computer (TEMPEST IBM 5170 PC AT); System Unit with 64kB ROM, 512kB RAM; 120 or 220 VAC, 50 or 60 Hz. TPC Keyboard IV, 84 Keys Options: 128kB RAM Expansion Three 512kB RAM Expansions 1.2MB Diskette Drive 20MB Fixed Disk Drive Second 20MB Fixed Disk Drive 30MB Fixed Disk Drive 40 MB Fixed Disk Drive Two 10MB Internal Removable Hard Disks 80287 Co-Processor MIL-STD Communications Adapter Serial/Parallel I/O Adapter Enhanced Graphics Adapter Monochrome Display and Printer Adapter Hercules Graphics Adapter 360kB diskette drive Model 4451-11 TPC Display I Model 4461-2 TPC Color Display III	4459
Computer, Personal	International Tech. Corp. McLean, VA 16Mhz 80386 based personal computer with 80287 co-processor, eight expansion slots, 512kB RAM and built-in serial and parallel printer ports, and 101-key keyboard. ITC-CD-8513 Color Display Monitor ITC-CDA-VGA VGA Color Display Adapter ITC-ME-2 2MB Memory Expansion Card ITC-ME-8 8MB Memory Expansion Card ITC-DC-1 Disk Controller Adapter ITC-FD-1 1.2MB Half-Height Floppy Drive ITC-RFD-30 30MB Removable Hard Drive ITC-RFD-120 120MB Removable Hard Drive ITC-TB-40 40MB Backup Tape Drive ITC-SEC-1 ISAC 2200 Encryptor Board ITC-LAN-10 Fiber Optic 10-NET LAN Adapter ITC-MOUSE 2-T Microsoft Mouse	ITC P386-T

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued)	ITC P386-T
	ITC-SP-1	Serial Communications Card
	ITC-LU-1	Advanced Communication Card
	ITC-DC-2	Disk Controller Adapter
Computer, Personal	International Tech. Corp. McLean, VA	ITC PS2-30-T
	Stand-alone personal computer system with a 10MHZ clock, serial/parallel ports, 540kB memory, 3 expansion slots & keyboard	
	Options:	
	ITC-PS2-MC 30	Math Coprocessor
	ITC-PS2-MOUSE	Mouse
	ITC-PS2-RD-30	Removable 20MB formatted hard drive
	ITC-PS2-FD-30	Up to 2 720kB floppy drives
	ITC-PS2-3278	3278/79 Emulation Adapter
	ITC-PS2-A2	Single Async Comm Port Card
	ITC-PS2-MD	8503 12" Monochrome Display
	ITC-PS2-CD-1	8513 12" Color Display
	ITC-PS2-CD-2	8512 14" Color Display
Computer, Personal	International Tech. Corp. McLean, VA	ITC PS2-50-T
	ITC-PS2-50-T Stand Alone Personal Computer System with a 10MHZ clock, serial/parallel ports, 1MB RAM, three expansion slots and keyboard.	
	IBM PS2 model 50 all options IBM equipment except Rodine Model 3045, 3055 Hard Drives and Tecmar Memory Board.	
	Options:	
	ITC-PS2-MC	Math Coprocessor
	ITC-PS2-ME	Memory Expansion Card (8MB memory)
	ITC-PS2-Mouse	Mouse
	ITC-PS2-RD	Two Removable hard drives; 45MB or 55MB unformatted
	ITC-PS2-FD	Floppy drives up to two 1.44MB drives
	ITC-PS2-DC	Hard Disk Controller Card
	ITC-PS2-AS	Dual Async Comm Port Card
	ITC-PS2-MD	8503 12" Monochrome Display
	ITC-PS2-CD-1	8513 12" Color Display
	ITC-PS2-CD-2	8512 14" Color Display
	ITC-PS2-50-ETHERNET	ETHERNET Adapter Card
	ITC-PS2-50-3270	Terminal Emulation Adapter Card
	ITC-EFD-50	5-1/4" High Density Flexible Mass Storage System

Equipment Category	Manufacturer City, State Description	Model Number
Computer, Personal	UNISYS Corp. Salt Lake City, UT PC/HT 100 with 16-bit Intel 8088 microprocessor (Model 200 with required feature F4773-97 installed) includes: Monochrome monitor; 256kB of RAM memory expandable to 640kB; one 5-1/4", 360kB flexible diskette drive; one RS-232-C asynchronous interface. Required features: F4773-97 One 5-1/4", 1.2MB flexible diskette drive F4911-99 EMC HT keyboard Selectable features: F4218-00 Intel 8087 Math co-processor F4688-00 256 kB Memory expansion board F4687-00 128kB Memory expansion board F5058-00 384kB Memory expansion board F4910-99 EMC Sync. Comm. interface (Uniscope) F5108-00 Tri-port serial interface F8495-00 Tri-port serial interface cable F4819-00 Tilt rotate base C5181-xx Power cord selections	T3143-82
Computer, Personal	UNISYS Corp. Salt Lake City, UT PC/HT Model 300 Personal Computer includes: System processor, high-resolution color monitor, 256kB of RAM memory expandable to 640kB, one 5-1/4", 360kB flexible diskette drive, one RS-232-C asynchronous interface. Required Features: F4774-00 One 5-1/4", 360kB flexible diskette drive F4911-99 EMC HT keyboard Selectable Features: F4688-00 256kB Memory expansion board OR F5058-00 384kB Memory expansion board F5108-00 Tri-port serial interface F8495-00 Tri-port serial interface cable F4217-01 Tilt rotate base C5181-xx Power cord selections	T3143-88
Computer, Personal	Wang Labs, Inc. Lowell, MA TEMPEST Advanced Professional Upgrades, PC CPU to APC CPU board and disk drives. The 75PC-T can be upgraded to XAPC-SxT TEMPEST Advanced Professional Computers with this optional CPU card and associated APC disk drive options with controller card Options: APC-PM29T APC Winchester Controller APC-PM23T 20MB Fixed Winchester Disk Drive	APC-PM46T

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued)	APC-PM46T
	APC-PM26T 67MB Fixed Winchester Disk Drive APC-PM24T 10MB Fixed Winchester Disk Drive APC-PM33T 1.2MB Floppy Diskette Drive	
Computer, Personal	Wang Labs, Inc. Lowell, MA	PC-XC1-3T
	Professional Computer with 8 slots, 512kB memory, single 360kB diskette drive, IBM emulation card, monitor, keyboard, MS-DOS and interpretive basic. Upgradeable to PC-XCx-3T-series PC and XAPC-SxT-series APC configurations. Accredited in multiple language character set versions in addition to the standard versions. Options: 75PC-PM02T Graphics Card 75PC-PM20T 360kB Diskette Drive 75PC-PM21AT 10MB Fixed Disk Drive 75PC-PM21CT 10MB Removable Disk Drive 75PC-PM30T 128kB Memory Expansion Card 75PC-PM31T 256kB Memory Expansion Card 75PC-PM32T 512kB Memory Expansion Card 75PC-PM33T Upgrade from 128kB CPU Card to 512kB CPU Card 75PC-PM40T Remote TC Option 75PC-PM42T Multiport Communications Option 75PC-PM100T Keylock On/Off Switch 75PC-MOUSE-T PC Mouse 75PC-PSDT Printer Sharing Device 75PC-PM141-OA-T OIS/Alliance Local Communications Card 75PC-PM141-VS-T VS Local Communications Card YT1-RM75PC-20T 20MB Docking Disk Drive YT1-75PC-PCI-T PCI Interface	
Computer, Personal	Wang Labs, Inc. Lowell, MA	PC-XC2-3T
	Professional Computer with 8 slots, 512kB memory, dual 60kB diskette drives, IBM emulation card, monitor, keyboard, MS-DOS and interpretive basic. Upgradeable to PC-XCx-3T, series PC and XAPC-SxT series APC configurations. Accredited in multiple language character set versions in addition to the standard versions. Options applicable to the PC-XC1-3T PC are also applicable to the PC-XC2-3T PC.	

Equipment Category	Manufacturer City, State Description	Model Number
Computer, Personal	Wang Labs, Inc. Lowell, MA Professional Computer with 8 slots, 512kB memory, single 360kB diskette drives, 10MB removable Winchester disk drive, IBM emulation card, monitor, keyboard, MS-DOS, and interpretive basic. Upgradeable to PC-XCx-3T, series PC and XAPC-SxT APC series configurations. Accredited in multiple language character set versions in addition to the standard versions. Options applicable to the PC-XC1-3T PC are also applicable to the PC-XC4-3T PC	PC-XC4-3T
Computer, Personal	Wang Labs, Inc. Lowell, MA IBM PC/AT compatible professional computer with 8 slots, 640kB memory, 360kB single diskette drive, monitor card, floppy disk controller, serial/parallel ports, cables and keyboard. This system is upgradeable to other PC-280xt series product configurations and is accredited in multiple language character set versions in addition to standard versions. Optional products listed under the PC280-1T are also optional products for the PC280-1AT	PC280-1AT
Computer, Personal	Wang Labs, Inc. Lowell, MA IBM PC/AT compatible professional computer with 8 slots, 640kB memory, 1.2MB single diskette drive, monitor card, floppy disk controller, serial/parallel ports, cables and keyboard. This system is upgradeable to other PC-280xT series product configurations and is accredited in multiple language character set versions in addition to standard versions. Options to this product include: DSK-0012-PC2T 1.2MB Diskette Drive DSK-0360-PC2T 360kB Diskette Drive MEM-0001-PC2T 512kB Extended Memory Board SIM-0001-PC2T 512kB Expansion Model for MEM-0001-PC2T COM-0001-PC2T Sync/Async. Communications Board VS-WLOC-PC2T VS Local Communications Option Board OIS-WLOC-PC2T OIS Local Communications Option Board HDD-3401-PC2T 34MB Full Height Fixed Disk Drive HDD-6801-PC2T 67MB Full Height Fixed Disk Drive MTH-0287-PC2T 80287 Co-processor Chip	PC280-1T

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued)	PC280-1T
	MON-1240-PC2T	Monochrome Monitor
	ARM-0001-PC2T	Monochrome Monitor Arm
	FLS-0001-PC2T	Floor Stand
	REM-2001-PC2T	20MB Docking Disk Drive
	REM-0001-PC2T	20MB Replacement Disk Drive
	MEM-DIR-PC2T	512kB Board with Direct Memory
	SIM-DIR-PC2T	512kB Upgrade with Direct Memory
	DSK-0720-PC2T	720kB Floppy Disk Drive
	VDC-0001-PC2T	Color/Monochrome Monitor Card
	Configured PC280-1T systems include: 280-OIS-T OIS Archiving Workstation consisting of PC280-1T with OIS-WLOC-PC2T Local Communications Board 280-VS-T VS Archiving Workstation consisting of PC280-1T with VS-WLOC-PC2T Local Communications Board	
Computer, Personal	Wang Labs, Inc. Lowell, MA IBM PC/AT compatible professional computer with 8 slots, 640kB memory, 1.2MB single diskette drive, 360kB diskette drive, monitor card, floppy disk controller, serial/parallel ports, cables and keyboard. This system is upgradeable to other PC-280xT series product configurations and is accredited in multiple language character set versions in addition to standard versions. Optional products listed under the PC280-1T are also optional products for the PC280-2T Options: YT1-MON-1640-T 16" Monochrome Monitor TEMPEST Intelligent 200 DPI Video Controller	PC280-2T
Computer, Personal	Wang Labs, Inc. Lowell, MA The PC-280-4T is an IBM PC/AT Compatible PC with 8 expansion slots, 640kB memory, a 1.2MB diskette drive and a 20MB docking disk, monitor card, floppy/disk controller, parallel/serial ports, cables and keyboard. This series is upgradeable to other PC-280-T series products and is accredited in multiple language character set versions in addition to the standard versions. Options for the PC-280-3T include: 75PC-PM200T 8PPM Desktop Laser PM018T 60 DPS Daisy Printer 75PC-PM16T PC RS-232-C Daisy Printer 750C-PM16T 160 CPS Printer	PC280-4T

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued)	PC280-4T
	FLP-0002-PC2T	1.2MB Diskette Drive
	FLP-0001-PC2T	360kB Diskette Drive
	REM-2000-PC2T	20MB Removable Disk Drive
	MEM-0001-PC2T	512kB Extended Memory Board
	SIM-0001-PC2T	512kB Expansion Module for MEM-0001-PC2T
	COM-0001-PC2TT	Sync/Async Communications Board for PC2
	VS-WLOC-PC2T	VS Local Communications Option (S/W inc)
	OIS-WLOC-PC2T	OIS/Alliance Local Comm Option (S/W inc)
	HDD-3401-PC2T	34MB full Height Fixed Disk Drive
	HDD-6801-PC2T	68MB Full Height Fixed Disk Drive
	MTH-0287-PC2T	80287 Coprocessor Chip
	MON-1240-PC2T	Monochrome Monitor
	ARM-0001-PC2T	Monochrome Monitor Arm
Computer, Personal	Wang Labs, Inc. Lowell, MA	PC381-T/PC382-T
	The PC381T and PC382T are 80386 microprocessor-based PCs with a 9-slot chassis. The PC381T has a system clock capable of running at 8 or 16MHz while the PC283T is capable of running at an 8 or 20 MHZ clock rate. Memory configurations are available from 1MB up to 16MB per memory board, and can be configured in 256kB or 1MB increments. Several floppy choices are available such as 360kB, 720kB, 1.2MB, and 1.44MB. A removable 20MB is also orderable and up to two can be configured per system. On the CPU board there is one parallel and two serial ports as well as a socket for an 80387 co-processor. The PC381T or PC382T can also be ordered as an upgrade to the Wang TEMPEST PC280T product line. Multiple keyboards are available including country specific configurations. Model numbers and descriptions for the above PC products follow:	
	YT1-PC381-2RMT	16MHz CPU, 1MB Memory, 1.2MB FLP, 20MB REM and Disk Controller
	YT1-PC382-2RMT	20MHz CPU, 2MB Memory, 1.2MB FLP, 20MB REM and Disk Controller
	YT1-PC381-1T	16MHz CPU, 1MB Memory, 1.2MB FLP, 360kB FLP and Disk Controller
	YT1-PC382-1T	20MHz CPU, 1MB Memory, 1.2MB FLP, 360kB FLP and Disk Controller
	YT1-PC381-CPUT	16MHz CPU, All Memory and Options Sold Separately
	YT1-PC382-CPUT	20MHz CPU, All Memory and Options

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued)	PC381-T/PC382-T Sold Separately
		YT1-PC280-U1T — PC280-T with 640kB Memory, All Other Disk Video and Keyboard Options Ordered Separately
		YT1-381-WS-1 — 381 with 1MB Memory, Archiving 1.2MB Drive and Host Connection for VS/OIS/ ALLIANCE
		YT1-UUI1-381T — 16MHz, 80386 CPU, with 1MB RAM Upgrade Kit for 280-T
		YT1-UUI1-382T — 20MHz, 80386 CPU, with 1MB RAM Upgrade Kit for 280-T
		YT1-SIM-2-PC3T — 1MB RAM Modules, 256kB Increments
		YT1-SIM-1-PC3T — 4MB RAM Modules, 1MB Increments
		YT1-MEM-03-PC3T — 1MB Memory Board (256kB Increments)
		YT1-MEM-04-PC3T — 4MB Memory Board (1MB Increments)
		YT1-MTH-16-PC3T — 80387 Co-processor for 16MHz
		YT1-MTH-20-PC3T — 80387 Co-processor for 20MHz
		YT1-HDD-42-PC2T — 42MB Fixed Drive
		YT1-724/KBD-XX-XT — TEMPEST 724 Keyboard
		YT1-723/KBD-XX-XT — TEMPEST 723 Keyboard
		PC2T-CK-XX — TEMPEST 723 Country Kit
		YT1-HDD-01-PC2T — ST-506 Controller
		MON-1240-PC2T — 12" Monochrome Monitor (EGA)
		MON-1450-PC2T — 14" Color Monitor
		YT1-REM-80-PC2T — 80MB Docking Disk Drive
		YT1-SCN-01-PC2T — Scanner Controller Card
Computer, Personal	Wang Labs, Inc. Lowell, MA Advanced Professional Computer with 8 slots, 512kB memory. 1.2MB diskette drive, keyboard, MS-DOS, and interpretive basic. Accredited in multiple language character set versions in addition to standard versions. Options to this product include: APC-PM23T — 20MB Winchester Disk Drive APC-PM25T — 30MB Winchester Disk Drive APC-PM29T — APC Winchester Controller APC-PM36T — 10MB Winchester Disk Drive APC-PM51T — 512kB Memory Upgrade APC-IWST — IWS monitor, 25' cable APC-PM08T — CGI card with keycaps and IBM emulation 75PC-PM04T — 7500T PC Monochrome display 75PC-PM01T — 7500T PC Monitor card APC-PM26T — 67MB Winchester disk drive APC-PM24T — 10MB Removable Winchester disk drive	XAPC-S1T

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued)	XAPC-S1T
	APC-PM34T	1.2MB Diskette Drive
	APC-PM35T	360kB Diskette Drive
	200-1124	80287 CO-processor Chip
Computer, Personal	Wang Labs, Inc. Lowell, MA Advanced Professional Computer with 8 slots, 512kB memory, 1.2MB diskette drive, 20MB Fixed Winchester Drive, keyboard, MS-DOS, and interpretive basic. Accredited in multiple language character set versions in addition to standard versions. Optional products listed under the XAPC-S1T are also optional products for the XAPC-S2T	XAPC-S2T
Computer, Personal	Wang Labs, Inc. Lowell, MA Advanced professional Computer with 8 slots, 512kB memory, 1.2MB diskette drive, 67MB Fixed Winchester Drive, keyboard, MS-DOS, and interpretive basic. Accredited in multiple language character set versions in addition to standard versions. Optional products listed under the XAPC-S1T are also optional products for the XAPC-S3T	XAPC-S3T
Computer, Personal	Wang Labs, Inc. Lowell, MA Advanced Professional Computer with 8 slots, 512kB memory, single 360kB diskette drive, keyboard, MS-DOS, and interpretive basic. Accredited in multiple language character set versions in addition to standard versions. Optional products listed under the XAPC-S1T are also optional products for the XAPC-ST	XAPC-ST
Computer, Personal	Zenith/INTEQ, INC. Herndon, VA IBM PC AT Compatible Personal Computer. Standard Features: MS-DOS Operating System 8MHz 80286 Processor 512kB RAM Color Graphics Adapter Two Parallel Ports Two Asynchronous Serial Ports One Asynchronous/Synchronous Serial Port Real Time Clock Options: Two 360kB 5-1/4" Floppy Disk Drives	ZVC-0003-AA

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) Two 1.2MB 5-1/4" Floppy Disk Drives Two 1.4MB 3-1/2" Microfloppy Disk Drive One 360kB 5-1/4" and One 1.2MB 5-1/4" Floppy Disk Drives One 360kB 5-1/4" Floppy Disk Drive and One 1.4MB 3-1/2" Microfloppy Disk Drive One 1.2MB 5-1/4" Floppy Disk Drive and One 1.4MB 3-1/2" Microfloppy Disk Drive One 53MB Removable Hard Disk Drive Two 53MB Removable Hard Disk Drives ZVM-122T CGA Monochrome Monitor ZVM-133T CGA Color Monitor ZTA-549 Adapter (Required for VGA Monitor) LG-7-T Three Button Mouse ZCM-1490-T VGA Color Monitor AT Compatible 84-key Keyboard ZTA-101 AT Compatible 101-key Keyboard 80287 Math Coprocessor ZT-425-1 1.1/1.5MB RAM Expansion 5/3/91: Comapny notified by letter of suspension due to failure to provide Annual Equipment Inventory Report. Product will appear in Section IV of July 1991 PPL. 05/08/91: Received the Annual Inventory Report on 7 May 1991. The product will now be moved back to Section II of the July 1991 PPL.	ZVC-0003-AA
Computer, Portable	GRiD Systems Corp. Fremont, CA Portable computer featuring: 16-bit microprocessor and optional coprocessor; 640 kB; 3-1/2" 720kB floppy disk drive; electroluminescent flat panel display; asynchronous, synchronous, centronics, and GPIB interfaces Option: Model 3407 3.5" Diskette Drive	1307
Control Unit	Dataproducts New England Wallingford, CT Multi-Channel Crypto Controller with 188/114 Interface	MC3-188/114
Control Unit	Titan Corporation Vienna, VA Communications Controller	BASIQ-1821-T

Equipment Category	Manufacturer City, State Description	Model Number
Digitizer	Ilex Systems, Inc. Milpitas, CA Voice Digitizer Options: 96 (suffix) - 9600 bp/s Transmission Speed Shielded Cable Interface Adapter Kit for the above models	VDC 4824T
Digitizer, Tablet	Datawatch Corp. Wilmington, MA TEMPEST Graphics Digitizing Tablet for use with graphics workstations and personal computers. Features: Four-button cursor for high accuracy tracing stylus for freehand drawing 110 volt/60 Hz or 230 volt/50-60 Hz power supplies	DATAWATCH 1201
Disk Drive	Datasec Corp. Wilton, NH Disk Drive storage device with an SCSI interface. The DSD-210 contains two 8" cartridge drives that can each accept one 10MB Bernoulli cartridge (total capacity of 20MB). The DSD-220 contains two 8" cartridge drives that can each accept one 20MB Bernoulli cartridge (total capacity of 40MB). (OEM is IOMega Corp.) Option: MacIntosh Interface	DSD-210(220)
Disk Drive	Wang Labs, Inc. Lowell, MA 71MB Portable Disk Drive	2269V-3T
Disk Drive	Wang Labs, Inc. Lowell, MA Optional 142MB Portable Winchester Drive for use with the VS5T and VS6T Systems	2269V-4T
Disk Drive	Wang Labs, Inc. Lowell, MA OIS/Alliance 275MB Removable Disk Drive	7565-2T
Disk Drive	Wang Labs, Inc. Lowell, MA VS 288MB Removable Disk Drive, Disk switch option is SW04-1 (VS only)	7565V-2T

Equipment Category	Manufacturer City, State Description	Model Number
Disk Drive	Wang Labs, Inc. Lowell, MA A modular disk drive cabinet assembly. It is composed of a 7595-CxT cabinet with a maximum of 2 drives to be installed. Cabinet modules can be stacked up to 3 modules high. A cabinet base (DSC-BT) is required for single or stacked cabinet modules. Each module has 2 individual drive cavities that can be accessed independently or connected serially by external I/O A and B disk drive cables. The YT1-7595(V)-CxT can accomodate either 1 or 2 80MB disk drives or 1 or 2 452MB disk drives. Model numbers are as follows: DSC-BT Modular disk storage cabinet base unit. 7567V-1T Optional 80MB Removable Storage Drive. This drive offers 72MB formatted capacity and is compatible with VS CPUs. Disk Switch is SW04-2T (VS only). 7567-1T Optional 80MB RSD Disk Drive with removable disk pack, compatible with OIS/Alliance CPUs. YT1-2268V-4T Optional 452MB Fixed Storage Drive. This drive offers 452MB formatted capacity. YT1-7595V-C1T One 7595-CxT cabinet and one 7567V-1T 80MB disk drive.	YT1-7595(V)-CxT
Display	Candes Systems, Inc. Harleysville, PA 19" Color Monitor, 29 to 37KHz scan rate, 1080 by 1024 pixel resolution	2019T
Display	Candes Systems, Inc. Harleysville, PA Ultra High Resolution Color Monitor, 1280-1024 (non interlaced) with 64KHZ Horizontal Scan Rate Options: RASTER OPS Driver Card Auto-Trak Mode	2119T
Display	Datasec Corp. Wilton, NH Monochrome Monitor	DSM-120
Display	Hetra Computer & Comm. Ind. Sebastian, FL 12" Monochrome Monitor	4902T

Equipment Category	Manufacturer City, State Description	Model Number
Display	Mitek Systems, Inc. Sterling, VA 19-inch High Resolution Color Monitor Options: T5119-1 Maximum Resolution 1024 x 1280 Pixels T5119-3 Maximum Resolution 1024 x 768 Pixels	T5119
Display	Wang Labs, Inc. Lowell, MA Professional Computer Wang/IBM Emulation Monochrome Monitor Option	75PC-PM101T
Display	Wang Labs, Inc. Lowell, MA Professional color monitor Features: Medium resolution 14" (13" viewable) display color Graphics & character capabilities (for PC280-XT & PC380-XT series professional computers) Supports many of today's most popular software packages & industry standard modes including: - enhanced graphics (EGA) - color graphics (CGA) .31 mm dot pitch gives a resolution of up to 800 x 600 pixels on a screen that yields an 80-column by 25-row display Integral base has a tilt range from 5 degrees forward to 15 degrees backward, along with a 180 degree swivel rotation for greater flexibility & viewing comfort Side panel controls, which are designed to provide easy access & enhanced display quality including: - On/Off - Horizontal Positioning - Vertical Positioning - Brightness - Contrast Rear panel switches provide controls for the following: - Over Scan - Preset Cancel - Analog/TTL inputs	MON-1450-PC2T
Facsimile	Cryptek, Inc. Herndon, VA Digital Facsimile Transceiver Designed for wide range of operating environments. COMSEC Supported: KG-13, KG-30, KY-57/58, KY-68/78, KG-84 Family, STU-II, STU-III, and others. Programmable Crypto Resync. Interface: RS232, RS449, MIL-STD-188-114, others.	TS-10

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) Modems Supported: V.22, V.27, V.29, V.32, others. Data Rates: 1.2 kbps to 32.0 kbps synchronous, up to 19.2 kbps asynchronous. Communications Error Tolerance: Up to 5 x 10-2 BER. Radio Support: HF, VHF, UHF, UHF Satellite, others. Data Sense Tolerance: Normal and inverted. No image retention. Protocols: MIL-STD-188-161A, Type 1, STANAG 5000 Type 1 and others (See below). Modes: Uncompressed, Comp., Comp. with FEC. Formats: B/W, halftones, and others (See Below). Resolutions: 200 x 200, 200 x 100, & 100 x 100 dpi. Original Document: Width up to 11.7" (A3) with auto reduction to 8.5" (A4). Printing: Thermal, auto paper cut, 100m roll. Auto Document Feed: 30 page capacity. Reports: Transmit, Receive, activity, and others. Power: 115 VAC standard. MIL-STD-188-161 & STANAG Type II: 4, 8, & 16 level Gray Scale option, Model 1070. Standard 01 & 02 synchronous protocols, standard. Non-standard 01, 02, & 03 synchronous protocols option, Model 1025. Non-standard 04 & 05 asynchronous protocols option, Model 1026. CCITT G3 commercial fax option, Model 1042.	TS-10
Facsimile	Mitek Systems, Inc. San Diego, CA Digital Facsimile Transceiver Interface Types: RS-232C Asynchronous (300b/s - 19.2kb/s) and Synchronous (2.4kb/s - 9.6kb/s) Scanning Method: Flat Bed by Solid Image Sensor (CCD Array) Recording Method: High Speed Thermal Printer (196 x 204 lpi maximum) Operational Modes: ASCII Terminal, Text Printer, and Copy Special Features: R-3312/TA, GFE Crypto (including STU-III, Statistical Multiplexer, X.25 Pad, and Digital PBX compatible. Document storage, retrieval, and distribution through PC based software. Halftone, Contrast, and Resolution control. Auto-Dial and Polling capabilities. Dimensions: 17.4"W x 13.2"L x 11.3"H Weight: 37 lbs. (OEM is Ricoh Corporation Model No. R-2112T)	850T

Equipment Category	Manufacturer City, State Description	Model Number
Facsimile	Secure Services Tech., Inc. Falls Church, VA Facsimile Single-Port One Red Digital Data Port	SST-T1 MIL-STD-188-114
Interface, Communication	FiberCom, Inc. Roanoke, VA Fiber Optic Ethernet Transceiver; Intra ring (G1) and Inter ring (G2) style WhisperLAN/T units 120 Va. C. and 240 Va. C. power line voltage ST and SMA style optical connectors	WhisperLAN/T
Interface, Communication	Mitek Systems, Inc. San Diego, CA Lazershare Printer Sharing Device, communications switch. 4 serial (110 b/s to 19.2 kb/s) and 3 bi-directional parallel ports. 512kB buffer concurrently accepts data from multiple sources. Automatic protocol conversion. Configuration controlled by front panel or commands in data stream. Configuration stored in CMOS RAM with battery backup. Graphics capability	810T
Interface, Communication	Titan Corporation Vienna, VA The Teqcom Standard Interface Device (SID) 1800-T is a 6-channel communications interface and controller	1800-T
Interface, Communication	Wang Labs, Inc. Lowell, MA A terminal emulation board that is used with the Wang PC280-xT/PC380-xT series of products as an option. The board allows the PC280-xT and PC380-xT to emulate an IBM terminal over type A coaxial compatible cable. Also, the board will have the SNA emulation capability of providing for file transfer from the PC to an IBM host that has the appropriate Forte Net II or Irma Link software components. The 3278/79 subsystem consists of: An internal card for PC280-xT/PC380-xT and software A filter card for PC280-xT/PC380-xT I/O A 9-foot double-shielded single-coax cable with TNC connector A 3" RF cable with BNC/BNC connectors An in-line filter assembly box (interface to user's Type A RG62 cable) The user's responsibility includes provision of an adequate TEMPEST-conditioned cable/network connection to our interface connection.	3278/79-EMUL-T

Equipment Category	Manufacturer City, State Description	Model Number
Interface, Communication	Wang Labs, Inc. Lowell, MA Standard External Chassis with: One 64kB data communications controller (TCT) One front panel (FP6554T) for OIS/Alliance CPUs & VS computer systems Four data communications controllers (TCT or TC1T) supported in external chassis for connection to OIS/Alliance CPUs or VS computer systems. Each controller requires an optional connector and front panel Optional connectors include: TCP-RS232T, TCP-RS449T, TCP-RS366T, and TCP-X21T for the 6554-1T or the 6554-2T external chassis. Optional front panels include: FP6554T Front Panel for 6554-1T or 6554-2T External Chassis Optional Controllers are: TCT 64kB Data Communications Controller TC1T 128kB Data Communications Controller	6554-1T
Interface, Communication	Wang Labs, Inc. Lowell, MA Standard External Chassis with: One 128kB Data communications controller (TC1T) One front panel (FP6554T) for OIS/Alliance CPUs & VS computer systems Four data communications controllers (TCT or TC1T) supported in external chassis for connection to OIS/Alliance CPUs or VS computer systems. Each controller requires an optional connector and front panel Optional connectors, front panel, and data communications controller for the 6554-1T external chassis are applicable to the 6554-2T external chassis	6554-2T
Interface, Communication	Wang Labs, Inc. Lowell, MA WISE-Wang Intersystem Exchange Device	7561T
Interface, Communication	Wang Labs, Inc. Lowell, MA The WACS-xxT is a family of asynchronous communication device controllers, which allow ANSI X3.64-compatible asynchronous devices to communicate with Wang VS5-xT, VS6-xT, VS65-xT, VS75-xT and 7585VST-x Computer Systems. Standard WACS-T products include: WACS-16T, 16-Port External Chassis	WACS-XXT

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) WACS-32T, 32-Port External Chassis 25V-WACS-16T, 16-Port ACS package with modular serial controller & cable kit for VS5-xT, VS6-xT, VS65-xT, & VS75E-xT computer systems 25V-WACS-32T, 32-Port ACS package with modular serial controller & cable kit for VS5-xT, VS6-xT, VS65-xT, & VS75E-xT computer systems 22V-WACS-16T, 16-Port ACS package with modular serial controller & cable kit for 7585VST-x computer systems Options: KIT-WACS-1T, Cable kit for 7585VST-x computer systems KIT-WACS-2T, Cable kit for VS5-xT, VS6-xT, VS65-xT, & VS75E-xT computer systems 200-0655-1T, 12-foot WACS-T RS-232 Cable Assembly 200-0655-2T, 25-foot WACS-T RS-232 Cable Assembly 200-0655-3T, 50-foot WACS-T RS-232 Cable Assembly 200-0655-4T, 100-foot WACS-T RS-232 Cable Assembly	WACS-XXT
Interface, Fiber Optic	ADC Telecommunications, Inc. Minneapolis, MN The Fiber Mate System is a modular system consisting of electrical to optical signal conversion modules and card cage type chassis. The Fiber Mate System provides a transparent transmission link via fiber optic cable between electrical input/output equipment. The various signal conversion modules may be mixed in a single chassis to support specific customer requirements. Chassis: RSACC-16 - Stand-alone chassis supporting up to 2 conversion modules. Contains a single power supply and operates on 90-130 VAC, 47-63Hz. RLDCC-16 - Rack mountable card cage chassis 16" deep, 5.25" high, and 19" wide. Supports up to 10 conversion modules and provides dual redundant power supplies. Power requirements are 90-130 VAC, 47-440 Hz. Modules: LSDM-01 - Low Speed Digital Multiplex Module converts 4 independent full duplex electrical signals (75 b/s to 64 kB/s into a transmit and receive optical signal. Is compatible with balanced or unbalanced MIL-188-114, and EIA 232, 423, 422, and 530 type signals. HSCM-78 - High Speed Conversion Module provides electrical to optical conversion of 3 independent full duplex signals on a single card. Data rates range from 75 b/s to 20MB/s for options 1 and 3 (78 ohms and 124 ohms, respectively) and 75 b/s to 5 MB/s for option 2 (100 ohms). Compatible with EIA-422, MIL-188-114 Type II and III.	Fiber Mate System

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) TIPBX-01 - Private Branch Exchange Interface Module provides 4 full duplex two-wire subscriber loop compatible communication links over fiber optic cable when used with the VFM. TIFM-01 - Telephone Interface Module provides 4 full duplex two-wire subscriber loop compatible communication links over fiber optic cable when used with the VFM. VFM-01 - Voice Frequency Multiplex Module provides electrical to optical conversion of 4 four-wire VF channels with E/M signalling.	Fiber Mate System
Interface, Fiber Optic	Digital Equipment Corp. Nashua, NH Fiber Optic Adapters RF-FOAFB-AA, Female 25-pin electrical connector controller RF-FOAMB-AA, Male 25-pin electrical connector controller	RF-FOAFB/MB-AA
Interface, Fiber Optic	FiberCom, Inc. Roanoke, VA WhisperPhone 1, Model WPI-REMOTE WhisperPhone 1, Model WPI-STU-II Interface Cable Part No. 023-524	Whisperphone I
Interface, Fiber Optic	Versitron Annapolis Junct, MD RS-232C/MIL-188 Fiber Optic Interface Extender M1120S (DTE) M1110S (DCE)	M11X0S
Interface, Fiber Optic	Wang Labs, Inc. Lowell, MA Multiplexed fiber optic data link supporting from 1 to 16 peripheral connections on 7500AT CPUs and 7500T VS Computer System Masters Product includes: FW-APA-2T, Two port FiberWay panel with link alarm that mounts in the Master's back panel FW-RCS-16T, Fiberway Remote Cluster Switch with link alarm supporting 1 to 16 coaxial connections FW-OA-AT, FiberWay Electrical I/O Processor Board for OIS/Alliance CPUs 25V67T, Serial I/O Processor Board for VS65-xT, VS5-xT, & VS6-xT Computer Systems 75V02T, Serial I/O Processor Board for 7585VST-x Computer Systems	FiberWay

Equipment Category	Manufacturer City, State Description	Model Number
Interface, Fiber Optic	Wang Labs, Inc. Lowell, MA Fiber Optic Converter with Link Alarm	FO-MC-1TA
Interface, Fiber Optic	Wang Labs, Inc. Lowell, MA Fiber Optic Converter	FO-MC-IT
Modem	Optelecom, Inc. Gaithersburg, MD Fiber Optic Full-Duplex Modem	4131PT/4131ST
Mouse	Aura Technologies Inc. Sterling, VA Mouse, (Graphic pointing device), Serial version (RS-232), 3-button Optical Mouse (OEM Mouse Systems Corporation)	M4-T
Mouse	Delta Data Systems Corp. Columbia, MD 3-button Graphics Input Device Standard features: - Serial Interface - 200 DPI Resolution	T87-610
Multiplexer	Dataproducts New England Wallingford, CT Same as AN/FCC-100(v)3X 16-Channel Time Division Multiplexer with any configuration from the following list of port modules and optional aggregate assemblies (all configurations include Asymmetric operation): Synchronous Port Module Asynchronous Port Module EIA RS-422A/423A Aggregate Low Speed MIL-STD-188-114A Aggregate Statistical Multiplexer (Basic) Port Statistical Submux (Expansion) Module Conditioned Diphase Port Module Isochronous Port Module High Speed MIL-STD-188-11A Aggregate PCM Voice Port Module CVSD Voice Port Module	2048AT-16
Multiplexer	Dataproducts New England Wallingford, CT 32-Channel Time Division Multiplexer with any configuration from the following list of port modules and optional aggregate assemblies (all configurations	2048AT-32

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) include Asymmetric operation): Synchronous Port Module Asynchronous Port Module EIA RS-422A/423A Aggregate High Speed MIL-STD-188/114A Aggregate Low Speed MIL-STD-188/114A Aggregate Isochronous Port Module Conditioned Diphase Port Module Statistical Submux (Basic) Module Statistical Submux (Expansion) Module CVSD Port Module PCM Port Module	2048AT-32
Multiplexer	General DataComm Sys., Inc. Middlebury, CT The Megaswitch TMP is a Time Division Multiplexer that is composed of a power supply, system control unit and up to four expansion units. The Megaswitch TMP offers three types of voice channels and accommodates synchronous, asynchronous, or isochronous data at channel rates from 75 bps to 1.152 mbps. The following channels and aggregates were tested: Data Channels: RS-232 (Async) 75 bps to 19.2 kbps (Sync) 75 bps to 19.2 kbps RS-422 (Sync) 75 bps to 1.152 mbps (Isoch) 75 bps to 64 kbps RS-423 (Sync) 100 kbps Voice Channels: ADPCM (Adaptive Differential Pulse Code Modulation) 32 kbps ASP (Advanced Speech Processing) 16 kbps CVSD (Continuously Variable Slope Delta) 64 kbps Aggregate Interfaces: RS-422 4.8 kbps to 2.048 mbps MIL-188-114 4.8 kbps to 100 kbps Unbal 4.8 kbps to 2.048 mbps Bal. RS-423 4.8 kbps to 100 kbps	Megaswitch TMP
Network	Digital Equipment Corp. Nashua, NH Local Area Network Communications Network RF-H4000-AA, RF-Ethernet Transceiver RF-BNS01-XX, RF-Ethernet Cable Kit Fiberoptic Cable DC Power Cable BNE-2A-XX, Network Interconnect Coaxial Cable	RF-H4000

Equipment Category	Manufacturer City, State Description	Model Number
Network	International Tech. Corp. McLean, VA Fiber Optic LAN HUB with 2 daughter boards and one mother board installed	ITC LAN-HUB-T
Optical Character Reader	Hetra Computer & Comm. Ind. Sebastian, FL Multiport Multifont Optical Character Recognition Page Reader (RS-232/MIL-STD-188C Interfaces)	9050T
Optical Character Reader	Ilex Systems, Inc. Milpitas, CA Models 2020T and 2030T Optical Page Readers (OEM is Dest Corp.)	2000T Series
Optical Character Reader	Mitek Systems, Inc. Sterling, VA T5176-1: Optical character reader which provides automated entry of typed and type set information to a host computer T5176-2: Palantir Document Processing System (9000) is a page reader with an RS-232 I/O port and an ethernet port that is optional	T5176
Plotter	SFA, Inc. Landover, MD Mural Plotter Special Features: RS-232C Interface Accepts Media Sizes A through E High Resolution Data Rates Ranging from 75b/s to 9600b/s	SFA 1401-T
Printer	Dataproducts New England Wallingford, CT Receive only Printer	MXT-1200C
Printer	Dataproducts New England Wallingford, CT Receive only Printer	MXT-1200VE
Printer, Band	Dataproducts New England Wallingford, CT Band Printer interfacing with the following: WWMCCS Compatible Interface SUL Interface Long Lines Interface DPC Parallel Interface	TB1000

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) Serial Interface Centronics Interface IBM 3274 TRIAX to Centronics Interface	TB1000
Printer, Band	Dataproducts New England Wallingford, CT Band Printer interfacing with the following: WWMCCS Compatible Interface Long Lines Interface DPC Parallel Interface Serial Interface Centronics Interface IBM 3274 TRIAX to Centronics Interface	TB600
Printer, Band	Wang Labs, Inc. Lowell, MA Medium Speed Band Printer	7574-1T
Printer, Daisywheel	Wang Labs, Inc. Lowell, MA WP/OIS/Alliance 64kB Daisy Printer with Dual Sheet Feeder	7582T DSF-1T
Printer, Daisywheel	Wang Labs, Inc. Lowell, MA The DW/OS-60AT is a Wang 60 Character Per Second Daisywheel printer. Special Features: letter quality printer attached to the VS and OIS computer systems prints at 60 CPS in burst mode accommodates up to 15-inch wide paper & multipart forms Options: triple bin feeder (DSF-60) forms tractor (FT-40)	DW/OS-60AT
Printer, Daisywheel	Wang Labs, Inc. Lowell, MA The DW/OS-60T is a Wang 60 Character Per Second Daisywheel printer. Special Features: letter quality printer attaches to the VS and OIS computer systems prints at 60 CPS in burst mode accommodates up to 15-inch wide paper & multipart forms	DW/OS-60T

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) Options: triple bin feeder (DSF-60) forms tractor (FT-40)	DW/OS-60T
Printer, Daisywheel	Wang Labs, Inc. Lowell, MA The PM018T is a Wang 60 Character Per Second Daisywheel printer Special Features: letter quality printer attaches to the Professional computer systems prints at 60 CPS in burst mode accommodates up to 15-inch wide paper & multipart forms Options: triple bin feeder (DSF-60) forms tractor (FT-40)	PM018-T
Printer, Dot Matrix	Dataproducts New England Wallingford, CT Dot Matrix, Color Graphics, Impact Printer	TCG-200
Printer, Dot Matrix	Dataproducts New England Wallingford, CT TCG-200 with IBM Graphics	TCG-202
Printer, Dot Matrix	Dataproducts New England Wallingford, CT Monochrome Version of TCG-200	TG-200
Printer, Dot Matrix	Datasec Corp. Wilton, NH Dot-matrix inkjet printer w/serial RS-232 I/O (OEM Hewlett Packard)	DSP-225-232
Printer, Dot Matrix	Delta Data Systems Corp. Columbia, MD Dot Matrix Printer Standard features: RS-232C serial interface 160 cps draft 32 cps NLQ 80 columns, 132 compressed Easy ribbon replacement Front panel controls Friction and pin feed Small footprint	FX-85T

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) Options: Expanded buffer board Parallel interface	FX-85T
Printer, Dot Matrix	Digital Equipment Corp. Nashua, NH Dot Matrix printer Special Features: 180 cps draft 45 cps near letter quality Graphics friction and tractor feed RS232 interface Option: Sheetfeeder (OEM Genicom 3184)	RF-LA1DR-AA/BA
Printer, Dot Matrix	Security Comm. of America Wallingford, CT Epson EX-1000T Dot Matrix Printer Special Features: IBM and Epson compatible Color Print Speeds up to 300 Characters Per Second High Resolution Graphics Multiple Character Fonts Large Internal Buffer	EX-1000T
Printer, Dot Matrix	UNISYS Corp. Salt Lake City, UT Model T0425-59 Special Features: 120V/60Hz High Density or Data Processing Quality 200 Characters per second maximum Centronics-compatible Interface Power Cord Required features: F3861-00 Forms Tractor Feed F8337-00 Interface Cable Model T0425-60 Special Features: 120V, 220V, 240V/50Hz, 60Hz High Density or Data Processing Quality 200 Characters per second maximum RS-232C Serial Interface (UNISYS protocol) Power Cord	25B

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) Required Features: F3861-00 Forms Tractor Feed F8268-03 Interface Cable	25B
Printer, Dot Matrix	Wang Labs, Inc. Lowell, MA Professional Computer 160CPS Matrix Printer	75PC-PM16T
Printer, Graphics	Delta Data Systems Corp. Columbia, MD Dot Matrix Graphics Printer (accredited as T2I SLP3184) Standard features: 180 cps draft 45 cps near letter quality Graphics 144x144 dpi Wide carriage RS-232 serial interface Options: Multicolor printing single document inserter Automatic sheet feeder (OEM is Genicom)	DD3184
Printer, Graphics	Delta Data Systems Corp. Columbia, MD Dot Matrix Graphics Printer (accredited as T2I SLP3304) Standard features: 300 cps EDP mode 200 cps draft 100 cps Near letter quality Graphics 144x144 dpi Wide carriage RS-232 serial interface Options: Epson emulation Multicolor printing Single document inserter Automatic sheet feeder (OEM is Genicom)	DD3304
Printer, Graphics	Delta Data Systems Corp. Columbia, MD Dot Matrix Graphics Printer (accredited as T2I SLP3404) Standard features: 400 cps draft	DD3404

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) 100 cps near letter quality Graphics 144x144 dpi Wide carriage RS-232 serial interface Options: Epson emulation Multicolor printing Single document inserter Automatic sheet feeder (OEM is Genicom)	DD3404
Printer, Ink Jet	Datasec Corp. Wilton, NH Ink Jet Printer Special Features: replaceable ink reservoir print head with Centronics parallel interface (OEM is the Hewlett Packard 2225C Think-Jet printer)	DSP-225-111
Printer, Ink Jet	Datasec Corp. Wilton, NH Ink Jet Printer Special Features: IEEE-488 Interface (OEM is Hewlett-Packard)	DSP-225-488
Printer, Ink Jet	Datawatch Corp. Wilmington, MA Portable Ink Jet Printer Special Features: Compact (2.5"h x 7.25"d x 13"w) Lightweight (8 pounds including batteries) Three power options available: Internal Rechargeable Ni-cad batteries Wall-mount 120 VAC/60 Hz power supply Wall-mount 220 VAC/50 Hz power supply Available in both parallel and serial interface versions Epson/IBM-compatible Graphics printing capability Print Speeds: 50 CPS Near Letter Quality 150 CPS Draft Quality 240 CPS Condensed Mode	DATAWATCH 150

Equipment Category	Manufacturer City, State Description	Model Number
Printer, Laser	Digital Equipment Corp. Nashua, NH The RF-LN03()-()() series laser printer provides high quality printing in a shared office environment. Depending upon the version, this product provides the customer with text, graphics, or PostScript printing capability at a speed of up to 8 pages per minute. Model Numbers: RF-LN03-AA 8 Pages Per Minute Text Printer, 120VAC/60Hz RF-LN03-AE 8 Pages Per Minute Text Printer, 240VAC 50Hz RF-LN03S-AA 8 Pages Per Minute Text/Graphics Printer, 120VAC/60Hz RF-LN03S-AE 8 Pages Per Minute Text/Graphics Printer, 240VAC/50Hz RF-LN03R-AA 8 Pages Per Minute PostScript Printer, 120VAC/60Hz RF-LN03R-AE 8 Pages Per Minute Postscript Printer, 240VAC/50Hz Options: RF-LN03X-CR RAM Cartridge RF-LN03X-XX Font Cartridge RF-FOAFB-AA Fiber Optic Adapter BN25C-XX Fiber Optic Cable RF-BC09D-25 RFI/EMI Shielded Cable Special Features: Text printing at 8 pages per minute Full-page 300 dots per inch Standard RS-232 Serial Interface Bit-mapped graphics (RF-LN03S-AA/AE only) Optional RAM/ROM cartridges (RF-LN03-AA/AE, RF-LN03S-AA/AE only) Provides PostScript compatibility (RF-LN03R-AA/AE only)	RF-LN03()-()()
Printer, Laser	North Atlantic Ind., Inc. Hauppauge, NY Desk-Top TEMPEST Laser Printer Special Features: Engine: Canon LPB-SX Print Speed: 8 pages per minute Printer Emulations: HP Laserjet + Interfaces: Std: RS232C Serial (300-19.2K) Centronics Parallel Option 5: Share Spool (4 users) Scanning Line Density: 300 DPI Memory: Std: 512kB (395kB user) Option 1: Additional 1MB	Laser II-T

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued)	Laser II-T Option 2: Additional 2MB Option 3: Additional 4MB Power: Std: 110 to 115V + or - 10%, 50/60 Hz Option 4: 220 to 240V + or - 10%, 50 or 60 Hz Fonts: 6 resident fonts, cartridge loaded host resident-down loaded Paper Handling: Single tray - 200 sheets letter, legal, A4, or B5 Option 6: IID: Dual 200-sheet trays, Envelope Feeder - 50 envelopes Two-sided page printing (OEM: HP Laserjet II)
Printer, Laser	North Atlantic Ind., Inc. Hauppauge, NY Desk-Top TEMPEST Laser Printer Special Features: Engine: Canon LPB-SX Page Description Language: PostScript Print Speed: 8 pages per minute Modes: PostScript batch mode RS-232/422, Appletalk Printer Emulations: Diablo 630 HP LaserJet + (HP-PCL) HP 7475A Plotter (HP-GL) Memory: 2MB RAM (3MB RAM optional), 1MB ROM Paper Size: Letter, Legal, A4, envelopes, labels, transparencies Cassette: 200 sheets Paper Output: 2 trays, face up and face down Resolution: 300 x 300 dots per inch Noise level: less than 55 db(A) Toner: Dry monocomponent toner in user-replaceable cartridges Fonts: 35 resident fonts from 4 pt. upward, Rotatable in 1 degree increments, host downloadable also available Interfaces: RS232C, RS422/Appletalk, Centronics Parallel Power: 110/120V 60 Hz or 220/240V 50 Hz (OEM: QMS, Inc.)	PS 810-T
Printer, Laser	Wang Labs, Inc. Lowell, MA TEMPEST Laser Imaging System Special Features: Prints 12 pages per minute in text mode Prints 6 pages per minute in graphics mode Model options are:	75LIS-12xT

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) 75LIS-12T for OIS CPUs 75LIS-12AT for Alliance CPUs 75LIS-12VT for VS Computer Systems	75LIS-12xT
Printer, Laser	Wang Labs, Inc. Lowell, MA Laser Printer Special Features: 15 pages per minute 300 by 300 dots per inch resolution attaches to PC280-xT and PC-XCx-3T series professional computers and XAPC-SxT series advanced professional computers available in both 120V/60 Hz and 240V/60Hz Printer options include: LCS15-IK-PC-T Interface Kit	LCS15-DSK-T
Printer, Laser	Wang Labs, Inc. Lowell, MA Laser Printer Special Features: 15 pages per minute 300 x 300 dots per inch Two power requirements: 103 to 127 VAC @ 50/60 Hz 206 to 254 VAC @ 50/60 Hz Two removable paper trays Attaches to the current Wang TEMPEST VS Systems or the OIS 7535AT and 7540AT Computer Systems	LCS15-SYS-T
Printer, Laser	Wang Labs, Inc. Lowell, MA Laser Printer Special Features: 8 pages per minute High resolution dot pattern (300 x 300 dots per inch) Supports LaserJet Series II applications Provides serial and parallel interface connections Paper may be fed automatically or manually in a variety of sizes & types Supports up to two font cartridges & a variety of downloadable software fonts Supports letter, legal, A4, & executive paper Options: Option 1T Memory Upgrade (1MB) Option 2T Memory Upgrade (2MB)	LDP8-DSK-T

Equipment Category	Manufacturer City, State Description	Model Number
Server Processor	Digital Equipment Corp. Nashua, NH Server Processor Model RF-DSRVB-AA 120 VAC 50/60 Hz Model RF-DSRVB-AB 240 VAC 50/60 Hz The RF-DSRVB-AA (-AB) provides the interface between 8 asynchronous serial data communications channels, at rates up to 19.2kB/s, on the TEMPEST Ethernet local area network. The devices intended for use on this terminal server are the RF-VT240, RF-VT320, RF-LN03, and RF-LA1DR. The local area network connection is supplied by the SIU interface, which provides 10MB/s data throughput to the TEMPEST Ethernet (TNET). The TNET connection is made by fiber optic link using a TEMPEST fiber optic transceiver (RF-H400x) attached to the backbone cable.	RF-DSRVX-XX
Tape Drive	Wang Labs, Inc. Lowell, MA VS 1/4" Streaming Cartridge Tape drive Special Features: Provides up to 60MB of storage on 600-foot data cartridge Supported on VS5-xT and VS6-xT systems	2238V-1T
Tape Drive	Wang Labs, Inc. Lowell, MA Tape Drive Special Features: Driven from a 7585VST-x CPU with 22V15-2T Tri-Density Tape IOP Capable of operating at 800/1600/6250 bits per inch Uses 10.5" tape reels that hold up to 2400 feet of magnetic tape Reads & writes in a forward direction at a speed of 75" per second Operates in up to 3 recording modes (densities) Recording modes selectable from either the host system or via the tape drive control panel Offers impressive media interchange compatibility, making it possible to exchange data from a non VS system to a Wang VS series Computer System Available with electrical power requirements for 100 & 120 VAC (208 and 240 VAC), 50Hz and 60Hz @ 400 Watts average with an average Btus/hr of 1500	2248V-1T

Equipment Category	Manufacturer City, State Description	Model Number
Tape Drive	Wang Labs, Inc. Lowell, MA 1/4" Archiving Cartridge Tape Drive	7529T
Tape Reader, Punched	Advanced Control Device Corp Dayton, OH Punched Tape Reader Special Features: 5- & 8- level tape/data punching & reading capability ASCII to BAUDOT and BAUDOT to ASCII conversion in both the punch & reader Built-in interfaces include RS232 & 188C serial & Centronics-compatible parallel Built-in fiber optic ports 160 cps reading & 80 cps punching rates 110/220 VAC 50/60 Hz 12-16 VDC operation	5120
Tape Reader, Punched	Mitek Systems, Inc. Sterling, VA The paper punched tape reader is a microprocessor based stand-alone peripheral which can read data from and punch data on paper tape	T5104
Teleprinter	Dataproducts New England Wallingford, CT KSR Printer	MXT-1200 KSR
Terminal	Datasec Corp. Wilton, NH Video Display Terminal VT-220-compatible monochrome display terminal (OEM is Esprit Systems, Inc. Model ESP 6515)	DST-220
Terminal	Datawatch Corp. Wilmington, MA Alphanumeric/Graphic Digital Equipment 240-Compatible Display Terminal	DATAWATCH 240
Terminal	Delta Data Systems Corp. Columbia, MD Video Display Terminal Options: printer port printer concatenation RS-422, RS-423, or MIL-188 for host port	8260AT and 8260T

Equipment Category	Manufacturer City, State Description	Model Number
Terminal	Delta Data Systems Corp. Columbia, MD Video Display Terminal Standard features: Emulates DEC VT220 and VT100 14" Monochrome Display Auxiliary RS-232 I/O Port 80- and 132-column Modes 18 User-definable Function Keys	DD 220T
Terminal	Digital Equipment Corp. Nashua, NH RF-VT240-BA (AA with WPS Keycaps) RF-VT240-AA comprised of: RF-VR201-A TEMPEST 12" B/W Monitor RF-LK201-CA TEMPEST Keyboard RF-VS240-A TEMPEST VT240 System Box Video display terminal with B/W Graphics, serial printer port, full duplex RS-232 communications port New Options: RF-LK301-AA Keyboard RF-LK301-PA Keyboard RF-LK302-AA Keyboard RF-LK302-PA Keyboard	RF-VT240-AA/-BA
Terminal	Digital Equipment Corp. Nashua, NH The RF-VT320 is a monochrome text-only video terminal. The screen measures 14" diagonal and is flat. All electronics for the terminal are housed within the monitor. The RF-LK201-XX keyboard is used. One comm port and one printer port are available. The terminal is set for 120 or 240 volt operation at the factory by a jumper wire. 50 or 60 Hz power can be used. Options: RF-VT320-A2; 120 Volt, with attached power Cord, No keyboard RF-VT320-A3; 240 Volt, with no power cord, no keyboard RF-Vt320-AA; RF-VT320-A2 with RF-LK201-AA, USA keycaps RF-VT320-DA; RF-Vt320-A2 with RF-LK201-BA, USA/WPS keycaps RF-VT320-AB; RF-VT320-A3 with RF-LK201-AA, USA keycaps RF-VT320-DB; RF-VT320-A3 with RF-LK201-BA, USA/WPS keycaps	RF-VT320-AA

Equipment Category	Manufacturer City, State Description	Model Number
Terminal	UNISYS Corp. Salt Lake City, UT T3560-23 UTS 20C Console Special Features: keylock power supply video display unit RS-232-C asynchronous interface high-speed host communications interface F5188-00 EMC modification to video display F3392-03 Central processing unit F5186-00 EMC modification to CPU F3761-00 Clock/calendar F5187-00 EMC modification to clock/calendar F5190-00 EMC program cartridge for UTS 20C F3972-01 Memory allocator ROM F5131-02 EMC keyboard C3395-xx Voltage selection One of the following EMC power cord selections: C5181-00 60 Hz, NEMA 5-15P C5181-01 50 Hz, SEV 1011 C5181-02 50 Hz, IEC 83/C5 C5181-03 50 Hz, B31363:1967 C5181-06 60 Hz, NEMA 6-15P Options: F3574-01 Tilt/swivel base	T3560-23
Terminal	UNISYS Corp. Salt Lake City, UT SVT 1140 Video Terminal Special Features Casework with a tilt-swivel base CRT central processing unit power supply 24kB of RAM two RS-232-C asynchronous interfaces one synchronous communications interface (Uniscope). Required features: F5131-99 EMC SVT 1140 keyboard C5181-xx EMC power cord selection	T3622-99
Workstation	Datawatch Corp. Wilmington, MA The X86 series of TEMPEST workstations are stand-alone IBM-compatible personal computers. They can also function as remote terminals to a host computer, and as workstations on a local area network. They are available with either 80286 or 80386 16MHz micro-	DATAWATCH 386/16

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) processors and up to 16MB RAM. The DW386/16 standard configuration of the DATAWATCH X86 TEMPEST Workstation comprises 2MB of RAM on the motherboard, one serial and one parallel interface. Options: OPTX86-01-A01 VGA Display Adapter OPTX86-02-A01 Monochrome Display Adapter OPTX86-03-B01 Logitech Bus Mouse OPTX86-05-A01 Western Digital Ethernet Interface OPTX86-05-A04 Excelan 205T Ethernet Adapter (Thick Net) OPTX86-05-A05 Excelan 205T Ethernet Adapter (Thin Net) OPTX86-06-A01 Excelan EXOS 205E Ethernet Interface OPTX86-07-A01 Datawatch Dual-Serial, 1 Parallel Port(s) Adapter OPTX86-08-A01 3270 Synchronous Interface OPTX86-09-A01 360kB 5.25" Floppy Disk Drive OPTX86-09-A02 1.2MB 5.25" Floppy Disk Drive OPTX86-09-A03 1.44MB 3.5" Floppy Disk Drive OPTX86-11-A01 20MB Hard Disk Drive OPTX86-11-A02 40MB Hard Disk Drive OPTX86-11-A03 70MB Hard Disk Drive OPTX86-12-A01 115MB Hard Disk Drive OPTX86-12-A02 160MB Hard Disk Drive OPTX86-14-B01 60MB Streaming Tape Drive and Controller OPTX86-15-AXX 101/2 Key Enhanced Keyboard OPTX86-22-A01 8 Port Intelligent Serial Adapter OPTX86-22-A02 4 Port Intelligent Serial Adapter PCB286-102-A02 Fast 1:1 Interleave, ST506 Disk Controller FAWM14-01-A01 Datawatch WM14 14" Monochrome Monitor FACM14-01-A01 Datawatch CM14 14" Color Monitor FAVM14-00-A01 Datawatch VM14 14" VGA Color Monitor	DATAWATCH 386/16
Workstation	Datawatch Corp. Wilmington, MA The DW286/16-ST506 configuration of the Datawatch X86 TEMPEST Workstation is a high-performance IBM AT compatible personal computer built around a 16 MHz, zero wait-state, 80286 microprocessor. Options: IC-80287-10 Numeric Coprocessor OPTX86-01-001 VCA Display Adapter OPTX86-02-001 Monochrome Display Adapter OPTX86-03-001 Logitech Bus Mouse OPTX86-05-001 Western Digital Ethernet Interface	DW286/16-ST506

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued)	DW286/16-ST506
	OPTX86-05-A04	Excelan 205T Ethernet Adapter (Thick Net)
	OPTX86-05-A05	Excelan 205T Ethernet Adapter (Thin Net)
	OPTX86-06-A01	Datawatch Dual-Serial, 1 Parallel Port(s) Adapter
	OPTX86-07-001	3278/3279 Coax Interface
	OPTX86-08-001	3270 Synchronous Interface
	OPTX86-09-A01	360kB 5.25" Floppy Disk Drive
	OPTX86-09-A02	1.2MB 5.25" Floppy Disk Drive
	OPTX86-09-A03	1.44MB 3.5" Floppy Disk Drive
	OPTX86-10-001	ST506 Disk Controller
	OPTX86-11-A01	20MB Hard Disk Drive
	OPTX86-11-A02	40MB Hard Disk Drive
	OPTX86-11-A03	70MB Hard Disk Drive
	OPTX86-12-A01	115MB Hard Disk Drive
	OPTX86-12-A02	160MB Hard Disk Drive
	OPTX86-14-001	60MB Streaming Tape Drive and Controller
	OPTX86-15-001	101-Key Enhanced Keyboard
	FAWM14-01-A01	Datawatch WM14 14" Monochrome Monitor
	FACM14-01-A01	Datawatch CM14 14" Color Monitor
	FAVM14-00-A01	Datawatch VM14 14" VGA Color Monitor
Workstation	Digital Equipment Corp. Nashua, NH	RF-PV01X-XX
	The TEMPEST VAXstation 3100 is a graphics workstation. The basic configuration consists of the CPU, Keyboard, Mouse, and Monochrome Monitor. The model number variations consist of additional options including diskette, tape drive, color monitor, increased memory and a choice of VMS or Ultrix operating system software.	
	RF-PV010-BC	Diskless, 19" Mono., RF-LK201, Mouse, VMS 120V
	RF-PV010-BD	Diskless, 19" Mono., RF-LK201, Mouse, VMS 240V
	RF-PV010-JC	Diskless, 19" Mono., RF-LK201, Mouse, Ultrix 120V
	RF-PV010-JD	Diskless, 19" Mono., RF-LK201, Mouse, Ultrix 240V
	RF-PV010-BW	Diskless, 19" Color, RF-LK201, Mouse, VMS 120V
	RF-PV010-BY	Diskless, 19" Color, RF-LK201, Mouse, VMS 240V
	RF-PV010-JW	Diskless, 19" Color, RF-LK201, Mouse, Ultrix 120V
	RF-PV010-JY	Diskless, 19" Color, RF-LK201, Mouse, Ultrix 240V

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued)	RF-PV01X-XX
	RF-PV011-BC	RX23, 19" Mono., RF-LK201, Mouse, VMS 120V
	RF-PV011-BD	RX23, 19" Mono., RF-LK201, Mouse, VMS 240V
	RF-PV011-JC	RX23, 19" Mono., RF-LK201, Mouse, Ultrix 120V
	RF-PV011-JD	RX23, 19" Mono., RF-LK201, Mouse, Ultrix 240V
	RF-PV011-BW	RX23, 19" Color, RF-LK201, Mouse, VMS 120V
	RF-PV011-BY	RX23, 19" Color, RF-LK201, Mouse VMS 240V
	RF-PV011-JW	RX23, 19" Color, RF-LK201, Mouse, Ultrix 120V
	RF-PV011-JY	RX23, 19" Color, RF-LK201, Mouse, Ultrix 240V
	RF-PV012-BC	TZ30, 19" Mono., RF-LK201, Mouse, Ultrix 240V
	RF-PV012-BD	TZ30, 19" Mono., RF-LK201, Mouse, VMS 240V
	RF-PV012-JC	TZ30, 19" Mono., RF-LK201, Mouse, Ultrix 120V
	RF-PV012-JD	TZ30, 19" Mono., RF-LK201, Mouse, Ultrix 240V
	RF-PV012-BW	TZ30, 19" Color, RF-LK201, Mouse, VMS 120V
	RF-PV012-BY	TZ30, 19" Color, RF-LK201, Mouse, VMS 240V
	RF-PV012-JW	TZ30, 19" Color, RF-LK201, Mouse, Ultrix 120V
	RF-PV012-JY	TZ30, 19" Color, RF-LK201, Mouse, Ultrix 240V
	Any of the 24 options above can be ordered with or without the following:	
	RF-RZ55-FA	300MB Hard Disk (Sidecar), 120V
	RF-RZ55-F3	300MB Hard Disk (Sidecar), 240V
Workstation	Wang Labs, Inc. Lowell, MA 64K OIS/Alliance Data Processing/Word Processing Workstation Special Features: Upgradeable to PC-XCx-3T series professional computers & XAPC-SxT series advanced professional computers Accredited in multiple language character set versions in addition to the standard versions	4230-OA-T

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) Available with keylock option configurations: 4230-KL-T - Field Upgrade 4230-OA-LT - Factory Installed	4230-OA-T
Workstation	Wang Labs, Inc. Lowell, MA 64K VS Data Processing/Word Processing Workstation Special Features: Upgradeable to PC-XCx-3T series professional computers & XAPC-SxT series advanced professional computers Accredited in multiple language character set versions in addition to the standard versions Available with keylock option configurations: 4230-KL-T - Field Upgrade 4230-VS-LT - Factory Installed	4230-VS-T
Workstation	Wang Labs, Inc. Lowell, MA 64K OIS Telecommunications Workstation Special Features: Upgradeable to PC-XCx-3T series professional computers & XAPC-SxT series advanced professional computers Accredited in multiple language character set versions in addition to the standard versions Available with keylock option configurations: 4230-KL-T - Field Upgrade 4230TC-LT - Factory Installed	4230TC-T
Workstation	Wang Labs, Inc. Lowell, MA OIS/Alliance Archiving Workstation Special Features: 128kB Local Communications option single diskette drive monitor keyboard Upgradeable to PC-XCx-3T series professional computers. Accredited in multiple language character set versions in addition to the standard versions	7501-OA-T
Workstation	Wang Labs, Inc. Lowell, MA VS Archiving Workstation Special Features: 128kB Local Communications option	7501-VS-T

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) single diskette drive Monitor Keyboard Upgradeable to PC-XCx-3T series professional computers Accredited in multiple language character set versions in addition to the standard versions	7501-VS-T
Workstation	Wang Labs, Inc. Lowell, MA Integrated Workstation Special Features: Base Keyboard Monochrome Monitor (75PC-PM04T) ARM 25-foot cable Character/graphics/IBM emulator (CGI) card (APC-PM08T) Monochrome Monitor Card (75PC-PM01T)	APC-IWST

SECTION III

JANUARY 1992 PREFERRED PRODUCTS LIST

PRODUCTS HAVING CONFIRMED DEFICIENCIES

Equipment Category	Manufacturer City, State Description	Model Number
Plotter, Color	International Tech. Corp. McLean, VA Color Plotter	ITC 10T

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Equipment Category	Manufacturer City, State Description	Model Number
Multiplexer	Timeplex, Inc. Woodcliff Lake, NJ Facilities management systems. Models TIM 1601/1602 and TIM 1603 Ultra wideband time division multiplexer facility which supports voice, data and compressed video transmission **DATE SUSPENDED: 01/01/92**	TIM-LINK T1

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SECTION V

JANUARY 1992 PREFERRED PRODUCTS LIST

PRODUCTS WHOSE ACCREDITATION HAS BEEN TERMINATED BECAUSE OF UNRESOLVED DEFICIENCIES OR FAILURE TO COMPLY WITH PPL PROCEDURES OR REQUIREMENTS

Equipment Category	Manufacturer City, State Description	Model Number
Display	CPT Corp. Minneapolis, MN 14" Video Monitor **DROPPED DATE: 07/01/91**	DSP-14B

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SECTION VI

JANUARY 1992 PREFERRED PRODUCTS LIST

PRODUCTS WHICH ARE NO LONGER BEING PRODUCED

Equipment Category	Manufacturer City, State Description	Model Number
Computer, Personal	C. R. International, Inc. Beltsville, MD Personal Computer with 80286 microprocessor, 512kB to 4MB RAM expansion, 40MB Removable Fixed Disk Drive, 1.2MB Flexible 5-1/4" Disk Drive, Monochrome Alphanumeric Display, an OFIS Link Keyboard, with optional Uniscope Communications Card. No longer in production. **DROPPED DATE: 10/01/91**	PW2 500/12T
Computer, Personal	Candes Systems, Inc. Harleysville, PA Keyboard, Mouse, two RS422/232 Serial Interfaces, SCSI Parallel Interface, and two 800kB Floppy Disk Drives (OEM MacIntosh) Option: 891-320T Hard Drive Remote (No Longer in Production) **DROPPED DATE: 07/01/91**	TPI-863-T
Computer, Personal	International Tech. Corp. McLean, VA Stand Alone Personal Computer with eight expansion slots, 512kB memory and keyboard Options: ITC Ethernet LAN interface card 8 expansion slots 256kB memory ITC PC-HC-1, 1.2MB high capacity floppy drive ITC-PC-MD1, monochrome display ITC PC-MP-1, monochrome display adapter with parallel communications port ITC PC-DA-5, drive adapter card with fixed disk & diskette capability ITC PC-SP-2, 2 serial/parallel communications adapter ITC PC-MC-2, math coprocessor card ITC PC-ME-1 thru 4 (4), 512kB memory expansion card ITC-Mouse-T, Mouse ITC PC-RW-10T, 10MB removeable cartridge drive ITC PC-EMGA-T, Enhanced Monochrome/Graphics Display Adapter Card ITC-PC-RFD-120T, 120MB Removable Fixed Drive (PC-AT-T	ITC PC-AT-T

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) Plug-in) ITC-PC-DA-6, DTC rigid disk/diskette drive adapter card ITC-AUTS-20T, UTS 20 terminal emulator card ITC-PC-ECD-T, enhanced color/graphics display system comprised of the ITC-PC-ECD-T enhanced display monitor, ITC-PC-ECGA-T adapter card, & ITC-PC-ECGA-ME-T extended memory card ITC-PC-60AT-T, Integrated Tape Backup Unit ITC-PC-RFD2-30T, Two ITC-PC-RFD-30T removable disk drives (Components: ITC-PC-RFD-30T(2X) 30MB removable rigid disk drive, ITC-PC-DA-6 DTC rigid disk/diskette drive adapter card) ITC-PC-RFD-30T, Removable disk drive (Components: ITC-PCDA-6 DTC rigid disk/diskette drive adapter card) ITC-PC-AT, Multifunction 2-T AST Advantage Multi-function adapter ITC-PC-VEGA-T, Enhanced color graphics adapter with 256kB of RAM (OEM Video 7 Inc.) (No Longer in Production) **DROPPED DATE: 07/01/91**	ITC PC-AT-T
Computer, Personal	International Tech. Corp. McLean, VA Stand alone personal computer with 8 expansion slots, 256kB memory, and keyboard. Options: ITC-PC-MD1, Monochrome Display ITC ETHERNET LAN, interface card ITC-PC-MP1, Monochrome Display with printer adapter ITC-PC-G1 or G2, Monochrome graphics card with parallel port RTC ITC-PC-MF-3, Multifunction card, RTC, (1) async, parallel port ITC-PC-M1 through M6, 64Kb through 384KB memory expansion ITC-PC-MC, Math coprocessor ITC-PC-LU-1, Programmable comm controller ITC-PC-HF1 and HF2, 1/2-height 360kB Floppy disk ITC-PC-DA-4, DA-3, & DA-1, floppy adapters ITC-PC-A1 or A2, async comm port ITC-PC-F1 and F2, full-height 360kB floppy disk ITC-PC-RW1 or RW2, 5MB removable Winchester disk ITC-PC-FW-1, 10MB Hard Drive ITC-PC-DA-2, Floppy adapter ITC-PC-M-7, Memory Expansion ITC-PC-MF-4, Multifunction Card RTC, 2 Async Parallel Ports ITC-Mouse-T, Mouse ITC-PC-EMD-T, enhanced monochrome/graphics display system (Components: ITC-PC-EMGA-T enhanced monochrome/	ITC PC-XT-T

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) graphics display adapter, ITC-PC-MD1 display) ITC 1210C-T, Disk drive controller card ITC-PC-ECD-T, Enhanced color/graphics display system ITC-PC-IRM-T 327X, Terminal Emulator (No Longer in Production) **DROPPED DATE: 07/01/91**	ITC PC-XT-T
Computer, Personal	Mitek Systems, Inc. Sterling, VA Apple Macintosh SE Personal Computer with dual 800kB 3.5" floppy drives, 1MB of RAM with up to 4MB RAM optional, RS-422 AppleTalk Port, RS-232 Port, Mouse, Extended Keyboard, and Monochrome Monitor. Basic Unit: Logic Board Power Analog Board 800kB Sony Floppy Drives Apple Extended Keyboard Mouse CRT Hard Disk Miniscribe 20MB Quantum 40MB (No Longer in Production) **DROPPED DATE: 04/01/91**	T5240 630-4125 630-0147 MFD-51W-03 TW-9894V-0 W-2594V-0 Clinton YK-100, Type 90912, 159-0019-D 8425S 940-40-9401-0023
Computer, Personal	Mitek Systems, Inc. Sterling, VA Macintosh II including up to 8MB of memory, two 800kB 3.5" diskette drives, 40MB removable hard drive, Appletalk Port, RS-232 Port, Apple Extended Keyboard, Apple Desktop Mouse, includes PMMU for support of A/UX. Options: 80MB Removable Hard Disk instead of 40MB Monochrome Video Card with 12" High Resolution Monochrome Monitor Spectrum Color Video Card with ARC Model T5119-3 Color Monitor Color Video Card with 13" High Resolution Color Monitor MS-DOS Option with MAC 286 Processor/Memory PCBs and 5-1/4" Floppy Disk Drive 3COM Etherlink N/B Network Card utilizes only the 15-pin "D" output External SCSI Port External 80MB SCSI Hard Disk Drive T5271 LaserWriter IINT with AppleTalk Port Connection to the T5270	T5270

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) MacViking Video Board Moniterm Monitor (No Longer in Production) **DROPPED DATE: 04/01/91**	T5270
Computer, Personal	TEMPEST Tech., Inc. (T2I) Herndon, VA Personal Computer with 80286 microprocessor, 8/10 Mhz Motherboard, 640kB RAM, Enhanced Graphics Adapter, 14" Multisync Color Monitor, 1 Centronics Parallel Interface Port, 1 Serial (RS-232) Interface Port, 110/220 VAC factory selectable (OEM - Alcatel Information Systems: ITT XTRA 286 AIW) Standard Features: TX-KB101 101AT Style Keyboard TX-40MB 40MB Removable Half Height Hard Disk Drive TX-5.25F 1.2MB 5-1/4" Floppy Disk TX-EGM/C Multisync Graphics Monitor/Color (EGM/mode) 640 x 380 Pixels 110/220V Factory Selectable Options: TX-KB102 102 Style Extended Keyboard TX-72MB 72MB Removable Hard Disk Drive TX-000841 Hard Disk Controller TX-3.50F 1.44MB 3-1/2" Floppy Disk TX-2MB 2MB RAM Memory Upgrade TX-80287 80287 Math Co-Processor TX-6000T External Data Conversion System with one each: 1.2MB 8" Drive 1.2MB 5-1/4" (96TPI) Drive 360kB 5-1/4" (48TPI) Drive 1.24MB/800kB 3-1/2" (135TPI) Drive TX-2000T Internal Data Conversion System occupying one half-height slot in the XTRA/286 TX with one of the following drives: 1.2MB 5-1/4" (96TPI) Drive 360kB 5-1/4" (48TPI) Drive **DROPPED DATE: 01/01/92**	XTRA 286TX
Disk Drive	GRiD Systems Corp. Fremont, CA Portable Floppy Disk (No Longer in Production) **DROPPED DATE: 07/01/91**	2107
Display	IBM Corp. Durham, NC RFQ 8K1069 CRT Display Station 1920 character buffer **DROPPED DATE: 10/01/91**	3278RC Model 2

Equipment Category	Manufacturer City, State Description	Model Number
Facsimile	Time and Space Proc. Inc. Sunnyvale, CA The TSP Easy-Fax, Model 9100 is a small, light-weight, portable, half-duplex facsimile unit which communicates with distant stations over a digital telephone network. User selectable built-in interfaces are RS232, RS423, MIL-STD-188-114, and MIL-STD-188-100. Transmission rate is from 2400 to 9600 bps. Scanning method is direct contact sensor. Compression scheme is modified Huffman, modified READ. Resolution is standard: 203 pels/in x 98 lines/in or detail: 203 pel/in x 196 lines/in. Liquid crystal display 16-character x 2-row alphanumeric display for operator and maintenance guidance such as: machine status, error message, transmission/reception results, configuration set-up, time and date. Features are automatic contrast control, unattended receiver mode, clock/calendar display, convenience copy, voice request, security check, and diagnostics. Dimensions of Fax are 13.2" W x 12.3" D x 7.1" H. Electrical is 120 VAC 50/60 Hz (No Longer in Production) **DROPPED DATE: 07/01/91**	9100
Interface, Fiber Optic	Optical Data Systems, Inc. Richardson, TX Fiber Optic 232/188 Line Driver with Interface Conversion ODS 108-M Male DB25 Connector ODS 108-F Female DB25 Connector **DROPPED DATE: 01/01/92**	ODS 108-M, 108-F
Interface, Fiber Optic	Optical Data Systems, Inc. Richardson, TX Optical Ethernet Interface forms a 100% optical ethernet when used with ODS 240 or ODS 241. When used with ODS 234-F forms an Ethernet Transceiver Drop Cable Replacement **DROPPED DATE: 01/01/92**	ODS 235
Modem	FiberCom, Inc. Roanoke, VA Fiber Optic Data Modem (No Longer in Production) **DROPPED DATE: 04/01/91**	TFM-9600

Equipment Category	Manufacturer City, State Description	Model Number
Modem	Optical Data Systems, Inc. Richardson, TX The ODS 411 Modem is an interface device which converts an IBM 317X/327X signal into a fiber optic signal. The unit allows the user to replace the RC62 A/U coax cables that normally connect such units, with fiber optic cables. The unit can be used at both remote and controller locations. The unit can be used to complete the connection to the ODS 817, 32-channel light output IBM 327X MULTIPLEXER. The unit is functionally compatible with all versions of IBM 317X/327X cluster controllers and type A terminals **DROPPED DATE: 01/01/92**	ODS 411
Multiplexer	Optical Data Systems, Inc. Richardson, TX 32-channel asynchronous RS-232/MIL 188C Fiber Optic Multiplexer with hardware flow control, for optical communications between terminals, computers, data switches, printer, and plotters **DROPPED DATE: 01/01/92**	ODS 314
Multiplexer	Optical Data Systems, Inc. Richardson, TX 32-Channel 327X Fiber Optic Type A Multiplexer with fiber optic inputs and outputs. Four each 3299 multiplexed or 32 individual terminal data streams are supported **DROPPED DATE: 01/01/92**	ODS 817
Network	Optical Data Systems, Inc. Richardson, TX Ethernet 16 Channel, Fiber Optic Multiport Transceiver. The 16 local channels can be any mixture of Ethernet, Revision 1, Revision 2, IEEE 802.3, or thin wire Ethernet. A 17th port is provided to connect to a coax backbone or another ODS 240 in a tree structure. **DROPPED DATE: 01/01/92**	ODS 240
Network	Xerox Corp. Sunnyvale, CA 8000 Network System Model 8033T File/Communications Server consisting of: K93 Processor M51 42MB Drive M47 Display/keyboard 73S80541 Ethernet Tranceiver 152S25300 301 and 302 drop cables RS232C Communications capability P35 Memory Expansion Kit (No Longer in Production) **DROPPED DATE: 04/01/91**	8033T/60HZ

Equipment Category	Manufacturer City, State Description	Model Number
Network	Xerox Corp. Sunnyvale, CA 8000 Network System Model 8046T Print Server (See 8044 Printer Server) consisting of: M51 42MB Drive P35 Memory Expansion Kit (No Longer in Production) **DROPPED DATE: 04/01/91**	8046T/60HZ
Plotter	TEMPEST Tech., Inc. (T2I) Herndon, VA X-Y 8-pen plotter Special Features: Plots up to a 11" x 17" area 40 cm/s maximum plotting speed 1 mm to .025 mm progammable step size accuracy of plus or minus .3% of deflection automatic pen capping mechanism 3 built-in, switch selectable command sets (DIGIPLOT, PERSONAL PLOTTER, & HP-GL outer case is a shielded enclosure with hinged lid 5kB data buffer RS-232 serial interface No longer in production moved to section six of the PPL. **DROPPED DATE: 10/01/91**	WG3200T
Printer	IBM Corp. Durham, NC Pageprinter for use with IBM personal computer or host system providing letter quality printing with graphics configurations with the following options and feature codes: 3812 Pageprinter (Code 3125) With Shielded and Filtered Six Meter (Code 3135) 24 Meter (Code 3140) RS232C Cable Shielded and Filtered Six Meter VM Attach Cable (Code 3130) Shielded 3270 Information Display System Card (for coaxial connection to mainframe host) NOTE: Sharing Card (Code 3115) and TEMPEST Filter (Code 3125) are not compatible **DROPPED DATE: 10/01/91**	IBM 3812
Printer	TEMPEST Tech., Inc. (T2I) Herndon, VA Printronix P600 Special Features: Dataproducts or Centronics parallel interfaces 600 LPM printer with plot & graphics mode	LPF5600

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) 96 character ASCII Options: RS232 interface expanded character sets (No Longer in Production) **DROPPED DATE: 07/01/91**	LPF5600
Printer	TEMPEST Tech., Inc. (T2I) Herndon, VA Printronix P300 Special Features: Dataproducts or Centronics parallel interfaces 300 LPM printer with plot & graphics mode 96 character ASCII Options: RS232 interface expanded character sets (No Longer in Production) **DROPPED DATE: 07/01/91**	LPM5300
Printer, Daisywheel	TEMPEST Tech., Inc. (T2I) Herndon, VA Special Features: Centronics & IBM PC-compatible parallel interface 1.5kB buffer 115 VAC + 10%-15%, 50/60 Hz, switch selectable Options: 7.5kB buffer bidirectional forms tractor single & dual bin sheet feeder with envelope & triple bin sheet feeders RS-232C Serial Interface (No Longer In Production) **DROPPED DATE: 04/01/91**	760T
Printer, Dot Matrix	CPT Corp. Minneapolis, MN Dot Matrix Printer Special Features: 180 CPS Draft 45 CPS Near Letter Quality Graphics Friction and Tractor Feed RS232 Interface Options: Parallel Interface Color Sheet Feeders	DM 245T

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) OCR 36 lbs (No Longer in Production) **DROPPED DATE: 07/01/91**	DM 245T
Printer, Dot Matrix	International Tech. Corp. McLean, VA AMT color dot matrix printer Special Features: Serial and parallel I/O ports Print mode is user selectable between draft, memo & letter quality Graphics capability Options: Color with serial I/O port (OEM model 2001) Color with parallel I/O port (OEM model 2002) Black/White with serial and parallel I/O port (OEM model 2103) Black/White with serial I/O port (OEM 2101) Black/White with parallel I/O port (OEM 2102) (No Longer in Production) **DROPPED DATE: 07/01/91**	ITC 50-T
Printer, Dot Matrix	North Atlantic Ind., Inc. Hauppauge, NY Ruggedized Dot Matrix Printer Special Features: 180 cps Draft 75 cps Near Letter Quality Graphics 72x72 DPI Parallel Interfaces DEC LA 120, LA34, Anadex 9620, & 9625 Code 3 of 9 and I 2 of 5 Bar Code MIL-STD-461A, MIL-ST-810C, HAEMP/LIGHINING, EXTREME OPERATING ENVIRONMENT Options: Graphics 144x144 DPI EPSON MX and Diablo 630 Compatibility (No Longer in Production) **DROPPED DATE: 04/01/91**	7020T
Printer, Dot Matrix	North Atlantic Ind., Inc. Hauppauge, NY Dot Matrix Printer 215 cps Draft 90 cps Near Letter Quality 45 cps Letter Quality Graphics 144x144 DPI RS232 and Parallel Interfaces DEC LA 120, LA34	7035T

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) REGIS Graphics Anadex 9620 and 9625 EPSON MX and Diablo 630 Compatibility Code 3 of 9 and Code I 2 of 5 Bar Code Options: 4-word Processing Fonts 16kB RAM Buffer and EAROM (No Longer in Production) **DROPPED DATE: 04/01/91**	7035T
Printer, Dot Matrix	North Atlantic Ind., Inc. Hauppauge, NY Dot Matrix Printer Special Features: Print Speed: 290 cps-Draft 100 cps-Letter Quality Ribbon: Four-color, Black and Multi-strike Paper Width: 3.5 - 16" Graphics Resolution: 360x360 Dots Per Inch Noise Level: 53 dBA Fonts: 14 Resident Fonts and 11 Cartridges Interface: Centronic Parallel and RS232C 150 Baud -19.2kB Baud Printhead: 24 Pin Dot Matrix Impact Power: 115V 50/60 Hz, 230V 50/60 Hz (OEM NEC Information Systems Inc.) **DROPPED DATE: 01/01/92**	P5-T
Printer, Dot Matrix	TEMPEST Tech., Inc. (T2I) Herndon, VA Dot Matrix Printer Special Features: Operator changeable interface/personality cartridge (Serial RS 232C or Parallel Centronics) Bidirectional printing with emphasized, doublestrike, expanded, bold, compressed, underscore and, proportional spacing modes. Draft mode - 200 CPS at 10 CPI (character formation 9H x 9V) Quality mode - 100 CPS at 10 CPI (character formation 35H x 9V) 18 staggered wire print head array Bit Image (Graphics) Format - 144 DPI V by 240 CBIH Printing modes 10 CPI, 12 CPI Vertical line spacing - 3, 4, or 6 lines per inch 2K character buffer Power, 115VAC Domestic Options: Line spacing other than above can be determined by a personality cartridge in 1/216 inch increments.	1020T

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) Personality/Interface Cartridges IBM Color Graphics Printer/Parallel IBM Color Graphics Printer/Serial Genicom - Ansi/Parallel Genicom - Ansi/Serial Epson FX/JX Serial Epson FX/JX Parallel Font Cartridges Courier Courier Italic Gothic Prestige Elite OCR-A OCR-B Orator Micro-Gothic 8K character buffer expansion Color Ribbon Kit Power, 200VAC International **DROPPED DATE: 01/01/92**	1020T
Printer, Dot Matrix	TEMPEST Tech., Inc. (T2I) Herndon, VA Dot Matrix Printer Special Features: 180 CPS Draft 45 CPS Near Letter Quality Graphics Friction and Tractor Feed RS232 Interface Options: Parallel Interface Color Sheet Feeders OCR 36 lbs. Ruggidized Dot Matrix Printer, Model SLP3184-3R (OEM Genicom 3184) **DROPPED DATE: 01/01/92**	SLP3184
Printer, Dot Matrix	TEMPEST Tech., Inc. (T2I) Herndon, VA Dot Matrix Printer Special Features: 300 CPS EDP 200 CPS Draft 100 CPS Near Letter Quality Graphics Friction and Tractor Feed RS232 Interface	SLP3304

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) Options: Parallel Interface Color Sheet Feeders OCR 36 lbs. (OEM Genicom 3304) **DROPPED DATE: 01/01/92**	SLP3304
Printer, Dot Matrix	TEMPEST Tech., Inc. (T2I) Herndon, VA Dot Matrix Printer Special Features: 400 CPS Draft 100 CPS Near Letter Quality Graphics Friction and Tractor Feed RS232 Interface Options: Parallel Interface Color Sheet Feeders OCR 36 lbs. (OEM Genicom 3404) **DROPPED DATE: 01/01/92**	SLP3404
Printer, Laser	Hewlett Packard Company Palo Alto, CA LaserJet Series II HP 33440A-T = 60Hz 110/115 VAC HP 33440B-T = 50Hz 220/240 VAC Special Features: 8 pages per minute standard 512kB memory 300 dots per inch (half-page) Serial and parallel interfaces Dual font Options: additional memory for full page 300 dots per inch graphics Multi-user interface for up to 3 simultaneous users On-site serviceable UL/CSA/TUV listed 001: 1MB memory upgrade (1.5MB total) 002: 2MB memory upgrade (2.5MB total) 004: 4MB memory upgrade (4.5MB total) 005: ShareSpool multi-user serial interface **DROPPED DATE: 04/01/91**	HP 33440x-T

Equipment Category	Manufacturer City, State Description	Model Number
Printer, Laser	Mitek Systems, Inc. San Diego, CA Desktop Laser Printer (LaserJet Series II) Model Number: 120T = 50/60Hz 110-115 VAC 120T-1 = 50/60Hz 220-240 VAC Special Features: Engine: Cannon LPB-SX Print Speed: 8 pages per minute Interfaces: RS-232C, RS-422, Parallel Paper Size: Letter, Legal, A4, Executive, Envelopes Correct Order Output 2 font cartridge slots Memory: 512kB, 300 dots per inch half-page graphics Options: Additional memory for full page 300 dpi graphics with additional memory for downloadable fonts & forms Memory Options: 400004: 1MB Additional Memory (1.5MB Total) 400005: 2MB Additional Memory (2.5MB Total) 400006: 4MB Additional Memory (4.5MB Total) (No Longer in Production) **DROPPED DATE: 04/01/91**	120T
Printer, Laser	Mitek Systems, Inc. San Diego, CA Multi-user Desktop Laser Printer Model Number: 125T = 50/60Hz 100-115 VAC Same functions & memory options as Mitek's 120T Special Features: Interfaces: 3 ea RS-232C, Parallel Selectable Serial I/O Rates of 9.6kB or 19.2kB Intelligent Buffer Management and Printer Sharing (No Longer in Production) **DROPPED DATE: 04/01/91**	125T
Printer, Laser	North Atlantic Ind., Inc. Hauppauge, NY Desk-Top TEMPEST Laser Printer (formerly Laser 8S) Special Features: Engine: Canon LPB-SX Print Speed: 8ppm Printer Emulations for all models: Qume Sprint 11, Diablo 630, Epson FX-80, ANSI X3.64 Card 20 additions IBM Proprinter HP Laserjet + (HP-PCL) Card 30 additions IBM Proprinter HP LaserJet + (HP-PCL)	KISS plus T

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) HP 7475A Plotter (HP-GL) Card 40 additions IBM Proprinter HP LaserJet + (HP-PCL) Tektronix 4010/4014 Interfaces: RS232C and Centronics Parallel Scanning Line Density: 300 DPI Memory Options: Card 10-512kB Card 20-1MB Card 30/40-2.5MB Power: 110V +/-10%, 50/60 Hz or 230V 50 Hz Fonts: 14 resident fonts, cartridge loaded host resident-down loaded (OEM: QMS Inc.) (No Longer in Production) **DROPPED DATE: 04/01/91**	KISS plus T
Workstation	Apollo Computers, Inc. North Billerica, MA The TDN3000 Personal Workstation is composed of a CPU chassis, keyboard, mouse, color monitor and associated controller board, one RS-232C I/O and a fiber optic Local Area Network Interface. The basic unit is composed of the following:	TDN3000

	Apollo Part No.
CPU chassis:	
CPU Board	K00105
Ring/Network Interface Set	K00022
2MB Memory	K00021
Power Supply	K00097
Keyboard	007121
Mouse	P7-3F-AO
Coaxial to Optic Link Adapter (TDLO-100)	10140001
Cables:	
CPU Power Cord (AIMOR)	E30174, LL19274
Monitor Power Cord (BELDEN)	E3462-F, LL24121
LAN Interface Cable	E48342, LR42921
External Keyboard Cable (Honeywell Dwg)	A39006309-001
External SIO Cable (Honeywell Dwg)	A39006784-001
External Video Cable (Honeywell Dwg)	A39006306-001
Options:	
Cartridge Controller	K00020
60MB Cartridge Tape Unit	5945L
ESDI/Floppy Controller	K00106
380MB Hard Disk Drive	K00023
170MB Hard Disk Drive	K00030
Four 2MB Expansion Memory Boards	K00021
Color Controller Board	K00032
19" Color Monitor	HW Model

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued)	TDN3000 No. 3000 K00035
	Floppy Drive 05/03/91: This Product has been moved to Section VI (No Longer in Production) of the July 1991 listing at the request of the company. **DROPPED DATE: 07/01/91**	
Workstation	Contel Federal Systems, Inc. Westlake Vil., CA Intelligence Work Station (IWS, also nomenclatured as 2000WS) 8-bit I/O processor 256kB RAM 16-bit (32016) processor 1MB RAM 1.2MB floppy disk dual buss backplane with buss expander two sync/async ports (RS232, MIL-188, RS-422) mouse keyboard Options: Dual Operator Configuration with 8-bit microprocessor & 256kB RAM expansion 16-bit (80286) microprocessor & 3MB RAM expansion 32 bit co-processor & 3MB RAM expansion Second keyboard Removable 10MB, 30MB, or 100MB Winchester Disks Second Removable 10 MB, 30MB, or 100MB Winchester Disks Up to 4 CRT monitors including: Graphics 19" display (1 or 2) 1280x960x4 monochrome Graphics 19" display (1 or 2) 1280x1024x8 color 13" EGA Color 14" Monochrome Parallel Port Four Async RS-232 Ports Ethernet-compatible Local Area Network Second 1.2MB floppy disk 3278 Emulator Series 3000 - 386 Intelligence Workstation with dual operator capability (No Longer in Production) **DROPPED DATE: 07/01/91**	AN/UYQ-47(V)
Workstation	Xerox Corp. Sunnyvale, CA High-Speed, single-user workstation designed for the professional office environment. It can be configured as a stand-alone workstation, remote workstation, or networked workstation connected to an Ethernet Local Area Network (LAN). The system includes a central high	6085T

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) performance Mesa processor, memory, a memory controller, a display controller, an I/O subsystem, a Personal Computer Option and optional external peripherals. The computer system consists of a processor unit with hard disk, keyboard, floppy disk unit, monochrome monitor and mouse. Options: 10k - U.S. Keyboard 12k - 19" Bit-Mapped Monochrome Display 15k - 40MB Removable Rigid Drive 16k - 80 MB Removable Rigid Drive 17k - 2.6MB Memory Expansion Board 18k - 512kB Memory Expansion Kit 19k - 360kB Floppy Disk Drive 21k - PC Emulator Board 22k - Control Store Memory Kit RS-232-C Communications Cable (50-foot) (152S24160) Ethernet Transceiver with Drop Cable (30-foot) 40MB Hard Disk Drive 120V, 60Hz Power Supply (No Longer in Production) **DROPPED DATE: 04/01/91**	6085T

INTRODUCTION TO
THE ENDORSED TEMPEST PRODUCTS LIST
AND
THE POTENTIAL ENDORSED TEMPEST PRODUCTS LIST

1. The National Security Agency (NSA) Endorsed TEMPEST Products List (ETPL) is a list of commercially developed and produced TEMPEST telecommunications equipment which NSA has endorsed, under the auspices of the NSA Endorsed TEMPEST Products Program (ETPP), for use by Government entities and their contractors to process classified U.S. Government information. NSA endorsement is a statement that the company has successfully demonstrated to NSA that its product complies with the requirements of the National TEMPEST Standard, NACSIM 5100A, Compromising Emanations Laboratory Test Standard, Electromagnetic, dated 1 July 1981, and that the company has in place and applies to the product, the manufacturing capability and product assurance controls necessary to ensure the continued TEMPEST integrity of the product subsequent to endorsement. In contrast to the accreditation process, which relied almost exclusively on private industry-certified TEMPEST professionals to determine product compliance with NACSIM 5100A, the ETPP endorsement process requires significant and active involvement by NSA technical resources in the evaluation and post endorsement product assurance inspection processes.

2. WARNING AND CAVEATS:

a. NSA does not make, by virtue of its endorsement, any warranty or representation, regarding the efficacy or fitness for use of the products contained in the ETPL.

b. NSA endorsement is limited to the specific product, manufacturer, and configuration of the product delineated on the ETPL. Users of equipment are cautioned that similar products of other manufacturers or equipment deviating from the ETPL listed configuration may not meet TEMPEST standards. Similarly, equipment/systems interconnecting with ETPL-listed equipment may not meet TEMPEST standards. Users are therefore advised to consult with their TEMPEST authority before processing classified information on non-endorsed equipment/systems.

c. The ETPL is designed to assist U.S. Government buyers and users to identify commercially available equipment which meet the national TEMPEST standard and to which manufacturers have committed to satisfying a vigorous product assurance program for ensuring the TEMPEST integrity of the product. The ETPL does not, however, constitute an inclusive

list of products which meet the national TEMPEST standard. The absence of a product from this list means one of the following:

1) The manufacturer of the product has not submitted a product proposal for endorsement under the auspices of the ETPP.

2) The manufacturer has submitted a proposal but was unable to satisfy the ETPP eligibility requirements.

3) The manufacturer has submitted a product proposal and is currently pursuing endorsement under the ETPP.

4) The manufacturer failed to satisfy the requirements for endorsement under the ETPP.

5) The manufacturer initially satisfied endorsement requirements, but product endorsement has since been terminated due to failure by the manufacturer to continue to satisfy post endorsement requirements.

d. By the definitions provided in the 1984 ITP Advertising Guidelines, the phrase "Designed to meet NACSIM 5100A" is to be used to describe products which will be advertised as containing TEMPEST control measures, but which have either not been TEMPEST tested at all or such tests have not been completed. Accordingly, a product advertised as "Designed to meet NACSIM 5100A" may indicate that the TEMPEST characteristics of the product have not been verified. Users requiring NACSIM 5100A-compliant equipment should only use products which have been fully tested to determine the product meets the national standard.

e. EXPORT CONTROL NOTE: TEMPEST equipment falls under the licensing jurisdiction of the Department of State, Category XI (C), Title 22 of Federal Regulations, Section 121.

f. The equipment on the ETPL is listed by the name of the company which manufactured the TEMPEST version of the product and <u>not</u> by the Original Equipment Manufacturer (OEM).

3. NSA endorsement and placement of a product on the ETPL does not occur until the Agency determines that a company has satisfied all ETPP requirements, including but not limited to, company submission and NSA approval of a product specific proposal, which includes an evaluation of the company's manufacturing and product assurance

capabilities; company submission and NSA approval of a TEMPEST test plan; company execution of the test plan on a production unit; company submission and NSA approval of various product assurance data deliverables delineating the company's manufacturing processes and techniques for ensuring the continuing TEMPEST integrity of the product.

4. In an effort to assist U.S. Government buyers and users with their procurement and budget planning, the Agency has created a Potential Endorsed TEMPEST Products List (PETPL). Companies are eligible to have their products included on this List upon satisfying preliminary ETPP requirements toward product endorsement, i.e., company submission and agency approval of the product test plan. Users are warned that inclusion upon this list does not in any way imply that the product will, in fact, receive endorsement. It merely evidences that the company has expressed intent to obtain endorsement of their product in accordance with the schedule incorporated into the MOA.

SCHEDULE OF SUBMISSIONS FOR ETPL AND PETPL LISTING

1. The ETPL and PETPL are updated four times yearly (January, April, July, and October). Only the current issue should be used. In order to coordinate all the chapters in the Information Systems Security Products and Services Catalogue (ISSPSC) with the various organizations who publish them, and in order for the timely printing and subscription distribution from the Government Printing Office of the ISSPSC, the Office of Acquisition Support and Business Development requests that all Chapters of the ISSPSC be delivered one month prior to the quarterly printing month. As a result, all documentation for the next quarterly printing of the ETPL and PETPL must be delivered to the Endorsed TEMPEST Products Program Management Office (PMO) two months prior to the quarterly publication month.

2. The following is the schedule of submissions for the ETPL and PETPL:

ETPP COMPANIES MUST HAVE DOCUMENTATION TO PMO BY:	PMO MUST DELIVER FINAL ETPL/PETPL FOR ISSPSC BY:	CATALOGUE PUBLISHING MONTH:
1 November	1 December	January
1 February	1 March	April
1 May	1 June	July
1 August	1 September	October

OUTLINE OF SECTIONS

1. The PETPL includes the name of the company, model number and equipment category of the product for which the company is seeking endorsement, and company point of contact.

2. The ETPL consists of six sections:

a. Index (Section I): A list of all equipment included in the ETPL and sorted alphabetically by the TEMPEST manufacturer's name. A cross-reference can be made to other sections in the document for additional information on the equipment.

b. White Pages (Section II): A list of endorsed products. Products are endorsed upon NSA determination that a company has satisfied all ETPP requirements initially and continue to be endorsed as long as they satisfy NACSIM 5100A and the company complies with the product assurance and integrity requirements of the program.

NOTE: NSA does not endorse prototype units.

c. Yellow Pages (Section III): A list of products containing confirmed TEMPEST deficiencies. Manufacturers are required to resolve these deficiencies in accordance with the ETPP requirements and time frame (a period not exceeding six months). Users of products listed in Section III are warned that deficiencies may exist and should contact TEMPEST authority for specific guidance regarding continued usage of the product for processing classified information. NSA has initiated a TEMPEST deficiency alert program to notify TEMPEST authorities, by classified message, of the nature and extent of the deficiency to enable TEMPEST authorities to provide users specific guidance regarding continued use of the product. If the TEMPEST deficiency is satisfactorily resolved within the allotted time frame, the product will be relisted in Section II.

d. Blue Pages (Section IV): A list of products with suspended endorsement pending product endorsement termination and appeal. Suspension of endorsement means that the company cannot continue to advertise the product as NSA endorsed or take any new orders from U.S. Government departments and agencies which require an NSA endorsed product. The company remains in Section IV pending company product endorsement termination and appeal.

e. Red Pages (Section V): A list of products whose

endorsement has been terminated because of unresolved deficiencies or failure to comply with ETPP procedures or requirements. Users of such products should seek guidance from their TEMPEST authority.

f. Green Pages (Section VI): A list of products for which the company has elected to permanently discontinue production.

ADMINISTRATIVE NOTES

1. Once a product is listed in Section V or VI, it will remain there for one year, after which it will be deleted from the ETPL.

2. Products listed on the ETPL are included in the NATO Recommended Products List (NRPL). The NRPL is available from the Government Printing Office (GPO).

3. Further information about a product on the list or specific questions regarding the absence or deletion of a particular product should be directed to the company point of contact provided.

4. Companies desiring information concerning the process for proposing the development of candidate TEMPEST products for the ETPL should contact:

Director
National Security Agency
ATTN: X512/TEMPEST
Fort George G. Meade, MD 20755-6000

JANUARY 1992 ETPL ANNOUCEMENTS

Annoucements will be updated quarterly.

The Electronic Bulletin Board System (EBBS) formerly used by the TEMPEST Endorsement Program Office for communications between this office and vendors has been discontinued. Any future communications will be conducted in writing or by telephone. Consult the address listed above in Administrative Notes.

January 1992 Potential Endorsed TEMPEST Products List

Manufacturer Address	Equipment Category	POC
Candes Systems Incorporated 3131 Detweiler Road Harleysville, PA 19438	Computer 1898T-XX-X	ATTN: Daniel J. Signore 215-256-4130
Communication Systems Tech. Inc. 9740 Patuxent Woods Parkway Columbia, MD 21046	Switch CS-1544	ATTN: William D. Kight 301-381-5080
Cryptek Secure Communications, Inc. Div of General Kinetics, Inc. P. O. Box 365 Herndon, VA 22070	Digital Facsimile Trans TS-10A	ATTN: Neel J. Price 703-478-7140
Datasec Corporation P. O. Box 790 Wilton, NH 03086	Display DSC-146	ATTN: Judy Figlioli 603-954-9700
Hetra Computer & Communications Industries, Inc. P. O. Box 9000 Sebastian, FL 32958	Computer, Personal 105TL-386/20-1XX	ATTN: Dan Wonak 407-589-7331 214
	Monitor, Color 4714T	
IBM Corporation System Integration Division P. O. Box 3775 800 North Frederick Avenue Gaithersburg, MD 20879	Option Package 4405 Workstation	ATTN: Robert J. Schumm 301-240-9900
Intergraph Corporation 2051 Mercator Drive Reston, VA 22091	Workstation/Fileserver 6000 Series	ATTN: William A. Creech 703-264-5696
Mitek Systems, Inc. P. O. Box 261004 6225 Nancy Ridge Drive San Diego, CA 92121	Computer, Personal 710TE	ATTN: Glenn Ritzmann 619-587-9157
	Computer, Personal 720TE	
	Computer, Personal 730TE	
	Display T5319E	

Manufacturer Address	Equipment Category	POC
Mitek Systems, Inc.		Continued
	Facsimile SFX2800TE	
	Facsimile SFX80TE	
	Monitor, Color 34xTE	
	Monitor, Color 350TE	
	Workstation 900TE	
North Atlantic Industries, Inc. 60 Plant Avenue Hauppauge, NY 11788-3890	Computer, Personal 386T-33E	ATTN: Arthur Freilich 516-582-6500 251
Versitron Division Shielding Systems Corporation 9005-8 Junction Drive Annapolis Junction, MD 20701	Interface, Communications LE0120S	ATTN: Richard Kelley 301-497-8600
Wang Laboratories, Inc. M/S 013-A2A One Industrial Avenue Lowell, MA 01851	Scanner YT2-SC300XX-T	ATTN: Don Gangemi 508-967-4093
Zenith/Inteq, Inc. 13860 Redskin Drive Herndon, VA 22071	Computer, Personal ZTE-386	ATTN: Steven G. Ferguson 703-471-1500
	Personal Computer ZTE-386	

Endorsed TEMPEST Product List

Equipment Categories

January 1992

Computer

Computer, Laptop

Computer, Personal

Disk Drive

Display

Display, Color

Facsimile

Interface, Communications

LAN, Fiber Optic

Network

Peripheral Cabinet

Printer, Color Video

Printer, Dot Matrix

Printer, Ink Jet

Printer, Laser

Scanner

Scanner, Color

Server Processor

Tape Drive

Terminal

Terminal/Workstation

Workstation

January 1992 Endorsed TEMPEST Products List

Section I

Indexed List of Equipments and Peripherals

Manufacturer City, State	Equipment Category	Model Number	Section
Apollo Computer, Incorporated Subsidiary of Hewlett-Packard Co. P. O. Box 183 North Billerica, MA 01862 ATTN: William Carson 508-256-6600 2569	Workstation	TDN3500	II
Candes Systems Incorporated 3131 Detweiler Road Harleysville, PA 19438 ATTN: Daniel J. Signore 215-256-4130	Computer Computer, Personal Disk Drive Display Display, Color Scanner	1891T-XX 1896T-XX 601T-XX 2319T-XX 2219T-XX 895T-XX	II II II II II III
Dataproducts New England, Inc. P. O. Box 30 Wallingford, CT 06492 ATTN: Marilyn Marek 203-265-7151 224	Printer, Dot Matrix	90X0-2T-X	II
Datawatch Corporation P. O. Box 847 Wilmington, MA 01887 ATTN: Alan MacDougall 617-932-0550	Workstation Workstation Workstation	X86/020 X86/540X X86/550	II II II
Delta Data Systems Corp. 7175 Columbia Gateway Drive Columbia, MD 21046 ATTN: Robert Mellott 301-290-6400	Computer, Personal Computer, Personal Computer, Personal Computer, Personal Display, Color	8705T 8715T 8980T TSX-XXX DM1490TE	II II II II II
Digital Equipment Corporation Mail Stop MK02-1/K6 Digital Way, P.O. Box 9501 Merrimack, NH 03054-0430 ATTN: Mario Martinello 603-884-4375	Network Server Processor Server Processor Terminal Terminal	RF-H4005-XX RF-DELNI-XX RF-DSRVB-XX RF-VT320-XX RF-VX120-XX	II II II II II
FiberCom, Incorporated P. O. Box 11966 3353 Orange Avenue, N.W. Roanoke, VA 24022-1966 ATTN: Jack Freeman 703-342-6700	LAN, Fiber Optic	7441-XX	II

Manufacturer City, State	Equipment Category	Model Number	Section
GRiD Systems Corporation P. O. Box 7896 Fremont, CA, 94537-7896 ATTN: Patty Bergquist 415-226-5249	Computer, Laptop	1537E	II
Hetra Computer & Communications Industries, Inc. P. O. Box 9000 Sebastian, FL 32958 ATTN: Dan Wonak 407-589-7331	Computer, Personal Computer, Personal Computer, Personal Computer, Personal Display Display, Color Printer, Color Video Scanner Terminal, X-Windows Workstation	105TL-286/12-1XX 105TL-386/SX-1XX 105TS-286/12-1XX 105TS-386/SX-1XX 4820T 4814T 3443T 9301T-X X-130T RISC-6000/320T	II II II II II II II II II II
Hewlett-Packard Company Secure Products Operation 1501 Page Mill Road Palo Alto, CA 94304 ATTN: Raymond Yee 415-857-7056	Printer, Laser Workstation	33449X-T 98588G-T	VI VI
Hughes Data Systems P. O. Box 68019 Anaheim, CA 92807 ATTN: Scott Webster 714-693-5926	Printer, Laser	1L03-T	II
IBM Corporation System Integration Division P. O. Box 3775 800 North Frederick Avenue Gaithersburg, MD 20879 ATTN: Robert J. Schumm 301-240-9900	Workstation	4405	II
Ilex Systems, Inc. 1423 South Milpitas Boulevard Milpitas, CA 95035 ATTN: Bob Robinson 408-945-0294	Facsimile Facsimile	750T 760T-X	II II
International Technology Corp. P. O. Box 6250 McLean, VA 22106-6250 ATTN: David J. Bloch 703-749-1200	Computer, Personal	ITC PC 386/33-TE	II

Manufacturer City, State	Equipment Category	Model Number	Section
Martin Marietta Corporation P. O. Box 1260 Denver, CO 80201-1260 ATTN: Curtis Brudos 303-977-0867	Workstation	AN/TYQ-37	VI
Mitek Systems, Inc. P. O. Box 261004 6225 Nancy Ridge Drive San Diego, CA 92121 ATTN: Glenn Ritzmann 619-587-9157	Computer, Personal	610TE	II
	Computer, Personal	650TE	II
	Computer, Personal	660TE	II
	Computer, Personal	T5270ECI	II
	Computer, Personal	T5270ECX	II
	Computer, Personal	T5300-E	II
	Interface, Communications	SPC-12TE	II
	Peripheral Cabinet	T5401E	II
	Printer, Laser	104TE	II
	Printer, Laser	108TE	II
	Printer, Laser	130TE	II
	Printer, Laser	T5271E	II
North Atlantic Industries, Inc. 60 Plant Avenue Hauppauge, NY 11788-3890 ATTN: Arthur Freilich 516-582-6500 251	Printer, Dot Matrix	P24-Te	II
	Printer, Ink Jet	DeskJet-Te	II
	Printer, Laser	Laser III-Te	II
	Printer, Laser	Laser IIP-Te	II
SFA, Inc. 1401 McCormick Drive Landover, MD 20785-5396 ATTN: P.J. Mondin 301-925-9400	Scanner, Color	TCS-300	II
	Tape Drive	TGP-802	II
Sun Microsystems Federal, Inc. P. O. Box 14277 Fremont, CA 94539-1577 ATTN: Warne Watson 408-276-5655	Workstation	3/260 T-E	VI
	Workstation	4/260 T-E	VI
Tektronix, Incorporated P. O. Box 500 Beaverton, OR 97077 ATTN: Walt Lowy 503-685-2720	Terminal/Workstation	4230T/4330T	V
Time & Space Processing, Inc. 705 Evelyn Avenue Sunnyvale, CA 94086 ATTN: Neil Wiseman 408-730-0200 318	Facsimile	9100-X-XX	II

January 1992 Endorsed TEMPEST Products List

Section II

Endorsed Equipments and Peripherals

Equipment Category	Manufacturer City, State Description	Model No.
Computer	Candes Systems Incorporated Harleysville, PA	1891T-XX

The Model 1891T-XX is a TEMPEST version of an Apple Macintosh SE-30 Computer with a 16MHz MC68030 CPU, built-in MC68882 Floating Point Unit (FPU), 256kB ROM, and an internal 1.4MB high-density 3.5 inch disk drive. Located on the rear of the cabinet are two Apple desktop bus ports, 1 SCSI port, 2 serial ports and 1 stereo audio jack. The 1891T-XX includes a 9" diagonal 512 x 342 pixel monochrome CRT.

Configured Options:

Model	Basic Unit with Included Options
1891T-01	HD-01 TEMPEST Internal 44MB Removable Cartridge Disk Drive (SyQuest SQ 555)

Additional Options:

KB-01	TEMPEST Keyboard (MO-115)
MM-01	1MB RAM (4 x 256k SIMMs)
MM-02	2MB RAM (dual 4 x 256k SIMMs)
MM-03	4MB RAM (4 x 1MB SIMMs)
MM-04	8MB RAM (dual 4 x 256k SIMMs)
MM-06	5MB RAM (4 x 1MB SIMMs and 4 x 256k SIMMs)
MO-01	TEMPEST Mouse (A9M0331)

Computer, Laptop	GRiD Systems Corporation Fremont, CA,	1537E

The GRiDCASE 1537E is a high performance laptop computer featuring the 80386sx processor and optional associated coprocessor, up to 8MB of RAM, a removable hard drive, floppy drive, and a broad range of I/O ports including dual serial, parallel, SCSI, VGA and external keyboard. The

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	1537E

GRiDCASE 1537E utilitizes an electroluminescent flat panel for crisp, clear viewing.

Additional Options available on GRiDCASE 1537E
357 - 40MB removable hard disk
358 - 120MB removable hard disk

Computer, Personal	Candes Systems Incorporated Harleysville, PA	1896T-XX

The Model 1896T-XX is a TEMPEST version of an Apple Macintosh IIci Computer with a 25MHz MC68030 CPU, built-in MC68882 Floating Point Unit (FPU), 512kB ROM, and an internal 1.4MB high-density 3.5 inch disk drive. Located on the rear of the cabinet are 2 Apple Desktop Bus Ports, 1 SCSI Port, 2 Serial Ports, 1 Stereo Audio Jack, and a Video Port.

Configured Options:

Model No.	Basic Unit w/ Included Options
1896T-00	Unit as described above
1896T-01	HD-02 Internal 40MB Removable Disk Drive (Quantum 40S)
1896T-06	HD-04 TEMPEST internal 80MB Removable Disk Drive (Quantum 80S)

Additional Options:
MO-01 TEMPEST Apple Desktop Mouse (A9M0331)
KB-01 TEMPEST Apple Extended Keyboard (M0115)
MM-01 1MB RAM (4 x 256k SIMMs)
MM-02 2MB RAM (Dual 4 x 256k SIMMS)
MM-03 4MB RAM (4 x 1MB SIMMs)
MM-04 8MB RAM (Dual 4 x 1MB SIMMs)
MM-06 5MB RAM (4 x 1MB SIMMs and 4 x 256k SIMMs)
MM-07 16MB RAM (4 x 4MB SIMMs)
MM-08 32MB RAM (4 x 8MB SIMMs)
VD-02 TEMPEST Apple Hi-Res, Monochrome Monitor (M0400)
RM-01 128kB Cache Memory
VD-03 TEMPEST Apple Hi-Res. RGB Monitor (M0401)

Equipment Category	Manufacturer City, State Description	Model No.
Computer, Personal	Delta Data Systems Corp. Columbia, MD	8705T

The 8705T is a PC/AT Compatible Personal Computer in a tower configuration that features an Intel 80386-25 Mhz plug in CPU and an ISA 12 slot passive backplane with 8 16-bit and 4 8-bit slots. The power supply is 110/220 volt, 220 watt. Memory options offer up to 16MB system memory directly on the CPU card and up to 32 KB cache. The standard configuration offers a 1.44MB 3.5" floppy, a 1.2MB 5.25" floppy, two serial DB9 RS232/MIL188 ports, one parallel port, a keyboard port, and five chambers for mass storage devices.

Configured Options:

Model:	Memory Options Included:
8705T-PC-31	Basic Unit with 4 Mb Memory
8705T-PC-32	Basic Unit with 8 Mb Memory
8705T-PC-33	Basic Unit with 1 Mb Memory
8705T-PC-34	Basic Unit with 16 Mb Memory

Options Available on All Models:

14" Monochrome Monitor	DM-1425
14" Tri-Sync Color Monitor	DM-1490TE
Mono Graphics Adapter & Port	DA-1424
Video Adapter- VGA-compatible	DA-1426
1024 x 768 VGA Display Adapter	DA-1428
80387-25 Mhz Math Co-processor	T87-214
Additional Serial/Parallel Adapter Kit	T87-400
101 Key Enhanced AT Keyboard (USA)	KB-4800A
102 Key Enhanced AT Keyboard (UK)	KB-4800B
102 Key Enhanced AT Keyboard (German)	KB-4800C
102 Key Enhanced AT Keyboard (French)	KB-4800D
102 Key Enhanced AT Keyboard (Italian)	KB-4800E
102 Key Enhanced AT Keyboard (Spanish)	KB-4800F
102 Key Enhanced AT Keyboard (Swedish)	KB-4800G
102 Key Enhanced AT Keyboard (Swiss)	KB-4800H
Mouse, 3-Button, Hi-Res, RS-232 Serial	T87-614
Ethernet Transceiver	N84-008
Ethernet Controller Card (DOS Compatible)	N87-113
1 MB RAM Expansion	T336
4 MB RAM Expansion	T341
Lockit Security Device	T87-185
Controller, Dual Floppy/Hard Disk (ST-506)	T87-810
Controller, Dual Floppy/Hard Disk (SCSI)	T87-840

Primary Drive	Secondary Drive	Bay 3	Model

Equipment Category	Manufacturer City, State Description		Model No.	
	(Continued)		8705T	
	1.2M Floppy	1.4M Floppy	60MB Tape Backup	T87-533
	1.4M Floppy	1.2M Floppy	60MB Tape Backup	T87-537
	1.2M Floppy	1.4M Floppy	No Tape	T87-540
	1.4M Floppy	1.2M Floppy	No Tape	T87-544
	Bay 4			
	1.2 GB Removable HD (SCSI)			T87-160
	80 MB Removable HD (ST-506)			T87-140
	Bay 4	Bay 5		
	60 MB Rem HD	None		T87-220
	60 MB Rem HD	60 MB Rem HD		T87-221
	170 MB Rem HD	None		T87-222
	170 MB Rem HD	170 MB Rem HD		T87-223
	330 MB Rem HD	None		T87-224
	330 MB Rem HD	330 MB Rem HD		T87-225
	44.5 MB Cart. Drv	None		T87-226
	44.5 MB Cart. Drv	44.5 MB Cart. Drv		T87-227
	60 MB Rem HD	170 MB Rem HD		T87-228
	60 MB Rem HD	330 MB Rem HD		T87-229
	60 MB Rem HD	44.5 MB Rem HD		T87-230
	170 MB Rem HD	330 MB Rem HD		T87-231
	170 MB Rem HD	44.5 MB Rem HD		T87-232
	330 MB Rem HD	44.5 MB Rem HD		T87-233
Computer, Personal	Delta Data Systems Corp. Columbia, MD		8715T	

The 8715T is a PC/AT Compatible 32-bit EISA Personal Computer in a tower configuration. It features a 33Mhz Intel 80386 CPU based motherboard with 32-bit EISA bus technology. Memory options offer up to 16MB system memory directly on the motherboard. The standard configuration offers a 110/220 Volt 220 watt power supply, serial/parallel adapter, two serial RS232/MIL188 ports, parallel port, keyboard port, monochrome port with six 32-bit EISA and two 16-bit ISA expansion slots for options.

Options asvailable on the 8715T include a 14" color monitor with resolutions of VGA to 1024 x 768, and 19" high-resolution color to 1280 x 1024, 14" monochrome monitor, 101/102 key keyboards, ISA 16-bit and EISA 32-bit SCSI host adapters, 1.2 MB 5.25" and 1.44MB 3.50" floppy drives, 44.5MB cartridge, 60MB, 170MB, 330MB, 760MB, and 1.2GB removable SCSI hard drives, external SCSI port, SCSI tape back-up drive, quad asynchronous serial port kit, 3 button mouse, 16-bit and 32-bit Ethernet LAN Adapters, external transceiver, and transceiver cable assemblies.

Equipment Category	Manufacturer City, State Description	Model No.
(Continued)		8715T

Configured Options:

Model	Memory Options Included
8715T-PC-04	Basic Unit with 4MB Memory
8715T-PC-08	Basic Unit with 8MB Memory
8715T-PC-16	Basic Unit with 16MB Memory
M90-100	80387-33 Mhz Math Co-processor
M90-110	1MB Memory Upgrade Kit (256K x 9) 80ns
M90-120	4MB Memory Upgrade Kit (1MB x 9) 80ns
M90-130	220 Volt Option
DM-1425T	14" Monochrome Monitor
DM-1490TE	14" Tri-Sync Color Monitor
DM-1940T	19" High Resolution Monitor
V90-100	Mono Graphics Adapter & Port
V90-110	1024 x 768 VGA Display Adapter (Interlaced)
V90-200	1024 x 768 x 256 Adapter (1Mb VRAM & 2 Mb DRAM)
V90-210	1280 x 1024 x 256 Adapter (2Mb VRAM & 2 Mb DRAM)
V90-220	Memory Upgrade (V90-200 to V90-210)
V90-230	VGA Emulation for V90-200 & V90-210
V90-240	Microfield Graphics T8 Card w/2Mb RAM
P90-810	Two Serial (DB-9M,DB-25M)/Parallel Port Kit
P90-820	Four Async RS-232/MIL-188C (DB-9M) Port Kit
P90-830	External SCSI Port Kit
C90-100	SCSI Hard Disk/Floppy Ctrller Kit (16-bit ISA)
C90-110	SCSI Hard Disk/Floppy Ctrller Kit (32-bit EISA)
C90-120	LOCKIT Card (Floppy boot inhibit Card for UNIX)
K90-100	101 Key Enhanced AT Keyboard (U.S.A.)
K90-110	102 Key Enhanced AT Keyboard (U.K.)
K90-120	102 Key Enhanced AT Keyboard (German)
K90-130	102 Key Enhanced AT Keyboard (French)
K90-140	102 Key Enhanced AT Keyboard (Italian)
K90-150	102 Key Enhanced AT Keyboard (Spanish)
K90-160	102 Key Enhanced AT Keyboard (Swedish)
K90-170	102 Key Enhanced AT Keyboard (Swiss)
K90-180	Mouse, 3-Button, RS-232 Serial
L90-110	Ethernet Controller Card (16-Bit ISA)
L90-115	Ethernet Controller Card (32-Bit EISA)
L90-160	Verdix LAN Network Security Device Kit
L90-100	External Transceiver (Thick Coax)

Equipment Category	Manufacturer City, State Description	Model No.	
(Continued)		8715T	
L90-120	10 foot LAN Transceiver Cable		
L90-130	30 foot LAN Transceiver Cable		
L90-140	50 foot LAN Transceiver Cable		
L90-150	70 foot LAN Transceiver Cable		
F90-500	1.2M Floppy	Blank	Blank
F90-501	1.2M Floppy	1.4M Floppy	Blank
F90-502	1.2M Floppy	1.2M Floppy	Blank
F90-503	1.4M Floppy	Blank	Blank
F90-504	1.4M Floppy	1.4M Floppy	Blank
F90-505	1.4M Floppy	1.2M Floppy	Blank
F90-506	1.2M Floppy	Blank	150MB Tape Backup
F90-507	1.2M Floppy	1.4M Floppy	150MB Tape Backup
F90-508	1.2M Floppy	1.2M Floppy	150MB Tape Backup
F90-509	1.4M Floppy	Blank	150MB Tape Backup
F90-510	1.4M Floppy	1.4M Floppy	150MB Tape Backup
F90-511	1.4M Floppy	1.2M Floppy	150MB Tape Backup
F90-512	1.2M Floppy	Blank	44.5 MB Cart.
F90-513	1.2M Floppy	1.4M Floppy	44.5 MB Cart.
F90-514	1.2M Floppy	1.2M Floppy	44.5 MB Cart.
F90-515	1.4M Floppy	Blank	44.5 MB Cart.
F90-516	1.4M Floppy	1.4M Floppy	44.5 MB Cart.
F90-517	1.4M Floppy	1.2M Floppy	44.5 MB Cart.
	Bay 4		Bay 5
D90-200	330MB Removable HD		Blank
D90-210	330MB Removable HD		60MB Removable HD
D90-220	330MB Removable HD		170 MB Removable HD
D90-240	330MB Removable HD		330 MB Removable HD
D90-250	330MB Removable HD		44.5MB Removable HD
D90-310	170MB Removable HD		Blank
D90-320	170MB Removable HD		60MB Removable HD
D90-325	170MB Removable HD		170MB Removable HD
D90-340	170MB Removable HD		44.5MB Removable HD
D90-350	60MB Removable HD		Blank
D90-360	60MB Removable HD		60MB Removable HD
D90-370	60MB Removable HD		44.5MB Removable HD
D90-380	44.5MB Removable HD		Blank
D90-390	44.5MB Removable HD		44.5MB Removable HD
D90-400	760MB Removable HD		(Full Height)
D90-410	1.2GB Removable HD		(Full Height)
Computer, Personal	Delta Data Systems Corp. Columbia, MD	8980T	
	The 8980T is an IBM PS/2 Model 80 computer. Each computer is equipped with a 20 MHz 80386 microprocessor, featuring micro channel architecture, eight slot system board, 2MB RAM, ESDI disk		

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	8980T

controller, 115MB hard disk, 1.44MB 3.5" floppy drive, parallel port, serial port and a 101-key keyboard. The 8980T may also be configured with a 13" EGA color monitor, a second 1.44MB floppy drive, an 80387 math coprocessor, dual asynchronous adapter, ethernet local area network adapter, and two 6MB Memory Expansion Boards.

Model Nos.

8980T	The basic configuration consisting of a 20 MHz 80386 microprocessor, an eight slot system board, a 2MB RAM, an ESDI disk controller, a 115MB hard disk, a 1.44MB 3.5" floppy drive, a parallel port, a serial port, and a 101-key keyboard.
8980T-1	The basic configuration plus a 13" EGA color monitor and an EGA adapter board.

Available Options on All Models:

89D-001	1.44MB 3.5" Floppy Drive
89U-001	20 MHz 80387 Math Coprocessor
89I-001	Dual Asynchronous Adapter Board
89N-001	Ethernet LAN Board
89R-001	2MB Expansion Memory
89R-002	4MB Expansion Memory
89R-003	6MB Expansion Memory
89R-004	8MB Expansion Memory
89R-005	10MB Expansion Memory
89R-006	12MB Expansion Memory

Computer, Personal — Delta Data Systems Corp., Columbia, MD — TSX-XXX

The TSX-XXX is a general purpose personal computer. Each machine is equipped with, as a minimum, the following: 80386SX CPU at 16MHz, 1MB RAM, two RS232/MIL188 ports, one parallel port, one keyboard port, eight expansion slots (seven 16-bit and one 8-bit). The TSX-XXX operates automatically on world wide power. The TSX-XXX may also be configured with 3.5" 1.44MB floppy drives, 5.25" 1.2MB floppy drives, 32MB, 60MB, 107MB, 204MB removable hard drives, 44.5MB cartridge drives, an 80387SX math co-processor, an enhanced detachable keyboard, disk controller board, up to two fiber optic waveguides, a video controller with port, and a mouse. Memory may be expanded to 8MB on the motherboard, and with the addition of an expansion board up to 16MB. The DDSC VGA color monitor DTP-002

(Continued) TSX-XXX

(110V) and DTP-022 (220V) are available for use with this machine.

Model No.	Basic Unit with Included Options
TSX-001	DTV-002 VGA Port and Controller DTD-013 Floppy/SCSI Disk Controller DTD-033 3.5" 1.44MB Floppy Drive (Floppy 1)
TSX-002	DTV-002 VGA Port with Controller DTD-013 Floppy/SCSI Disk Controller DTD-035 5.25" 1.2MB Floppy Drive (Floppy 1)

Addditional Options Available on All Models:

DTR-002	RAM expansion, Total 2MB
DTR-003	RAM expansion, Total 4MB
DTR-004	RAM expansion, Total 8MB
DTR-005	RAM expansion, Total 12MB
DTR-006	RAM expansion, Total 16MB
DTN-011	Ethernet Controller
DTN-024	Transceiver Cable
DTN-031	Transceiver
DTA-012	Single Waveguide
DTA-013	Dual Waveguides
DTP-004	Mouse
DTU-001	80387SX Math Co-processor
DTK-001	Enhanced Keyboard, U.S.
DTK-002	Enhanced Keyboard, U.K.
DTK-003	Enhanced Keyboard, German
DTK-004	Enhanced Keyboard, French
DTK-005	Enhanced Keyboard, Italian
DTK-006	Enhanced Keyboard, Spanish
DTK-007	Enhanced Keyboard, Swedish
DTK-008	Enhanced Keyboard, Swiss

Additional Options Available on TSX-001:

DTD-043	3.5" 1.44MB Floppy Drive (Floppy 2)
DTD-062	32MB Removable Drive (SCSI 1)
DTD-063	60MB Removable Drive (SCSI 1)
DTD-064	107MB Removable Drive (SCSI 1)
DTD-065	204MB Removable Drive (SCSI 1)
DTD-068	44.5MB Cartridge Drive (SCSI 1)
DTD-072	32MB Removable Drive (SCSI 2)
DTD-073	60MB Removable Drive (SCSI 2)
DTD-074	107MB Removable Drive (SCSI 2)
DTD-075	204MB Removable Drive (SCSI 2)

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	TSX-XXX
	DTD-078	44.5MB Cartridge Drive (SCSI 2)
	DTP-002	VGA Monitor (110V)
	DTP-022	VGA Monitor (220V)

Please note: Certain drive combinations unavailable.

Addditional Options Available on TSX-002:

DTD-053	3.5" 1.44MB Floppy Drive (Floppy 2)
DTD-055	5.25" 1.2MB Floppy Drive (Floppy 2)
DTD-082	32MB Removable Drive (SCSI 1)
DTD-083	60MB Removable Drive (SCSI 1)
DTD-084	107MB Removable Drive (SCSI 1)
DTD-085	204MB Removable Drive (SCSI 1)
DTD-088	44.5MB Cartridge Drive (SCSI 1)
DTP-002	VGA Monitor (110V)
DTP-022	VGA Monitor (220V)

Please note: Certain drive combinations unavailable.

Computer, Personal

Hetra Computer & Communications — 105TL-286/12-1XX
Sebastian, FL

The Model 105TL-286/12-1XX is a large footprint PC/AT compatible Personal Computer. The basic unit is equipped with a 12 MHz 80286 CPU, 1MB RAM (expandable to 8MB in 1MB increments), two RS-232 serial ports, one parallel port, floppy/hard disk controller, video controller, 101-1T keyboard and two each disk drive bays that can each accommodate two half-height drives. An 80287 math coprocessor is available.

Configured Options:

Model Number	Description	
105TL-286/12-100	Basic Unit with Included Options	
	4814T	VGA/EGA Display
	5040300	EGA Controller
	H7356302	1.2MB Floppy Disk Drive
	H7356102	40MB Removable Hard Disk Drive
	CB220302	80287 Math Coprocessor

Additional Options:

H7357402	1.44MB 3.5" Floppy Disk Drive
H7356301	360kB 5.25" Floppy Disk Drive
H7357401	720kB 3.5" Floppy Disk Drive
50702000	100MB Removable Hard Disk Drive

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	105TL-286/12-1XX
	51193000 VGA Controller	
	51188000 Monochrome Controller	
	50405-002 1MB Additional Memory (each)	
	50804000 Mouse	
	50900000 44MB Cartridge Drive	
	H7357700 80MB Tape Backup	
Computer, Personal	Hetra Computer & Communications Sebastian, FL	105TL-386/SX-1XX

The Model 105TL-386/SX-1XX is a large footprint PC/AT compatible Personal Computer. The basic unit is equipped with a 80386/SX CPU, 1MB RAM (expandable to 8MB in 1MB increments), two RS-232 serial ports, one parallel port, floppy/hard disk controller, video controller, 101-1T keyboard, two each disk drive bays that can each accommodate two half-height drives. An 80287 math coprocessor is available.

Configured Options:

Model Number	Description
105TL-386/SX-100	Basic Unit with Included Options
4814T	VGA/EGA Display
50403000	EGA Controller
H7356302	1.2MB Floppy Disk Drive
H7356102	40MB Removable Hard Disk Drive
CB220302	80287 Math Coprocessor

Additional Options:

H7357402	1.44MB 3.5" Floppy Disk Drive
H7356301	360kB 5.25" Floppy Disk Drive
H7357401	720kB 3.5" Floppy Disk Drive
50702000	100MB Removable Hard Disk Drive
51193000	VGA Controller
51188000	Monochrome Controller
50405-002	1MB Additional Memory (each)
50804000	Mouse
H7357700	80MB Tape Backup
50900000	44MB Cartridge Disk Drive
51638-000	8-port Intelligent Serial Communications Interface

Computer, Personal	Hetra Computer & Communications Sebastian, FL	105TS-286/12-1XX

The Model 105TS-286/12-1XX is a small footprint PC/AT compatible Personal Computer. The basic unit is equipped with a 12 MHz 80286-CPU, 1MB RAM (expandable

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued) to 8MB in 1MB increments), two RS-232 serial ports, one parallel port, floppy/hard disk controller, 101-1T keyboard, and one disk drive bay that can accommodate two half-height drives. An 80287 math coprocessor is available.	105TS-286/12-1XX

Configured Options:

Model Number	Description	
105TS-286/12-100	Basic Unit with included options	
	4814T	VGA/EGA Display
	50403000	EGA Controller
	H7356302	1.2MB Floppy Disk Drive
	H7356102	40MB Removable Hard Disk Drive
	CB220302	80287 Math Coprocessor

Additional Options:

H7357402	1.44MB 3.5" Floppy Disk Drive
H7356301	360kB 5.25" Floppy Disk Drive
H7357401	720kB 3.5" Floppy Disk Drive
H7356101	20MB Removable Hard Disk Drive
50702000	100MB Removable Hard Disk Drive
51193000	VGA Controller
51188000	Monochrome Controller
50405-002	1MB Additional Memory (each)
50804000	Mouse

Equipment Category	Manufacturer City, State Description	Model No.
Computer, Personal	Hetra Computer & Communications Sebastian, FL The Model 105TS-386/SX-1XX is a Small Footprint PC/AT compatible Personal Computer. The basic unit is equipped with a 16Mhz 80386/SX CPU, 1MB RAM (expandable to 8MB in 1MB increments), two RS-232 serial ports, one parallel port, floppy/hard disk controller, video controller, 101-1T keyboard and a disk drive bay that can accommodate two half-height drives. An 80387/SX math co-processor is available.	105TS-386/SX-1XX

Configured Options:

Model Number:	Description
105TS-386/SX-100	Basic Unit with Included Options
	4814T VGA Display
	4000-MVGA/VGA Controller

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	105TS-386/SX-1XX 2512 1.2MB Floppy Disk Drive 2251 40MB Removable Hard Disk Drive 1387-20 16Mhz Math Co-Processor

Additional Options:

2314	1.44MB 3.5" Floppy Disk Drive
2503	360Kb 5.25" Floppy Disk Drive
2100	80MB Removable Hard Drive
4000-MONO	Monochrome Controller
SIMM-80	1MB Additional Memory (Each)
1003T	Mouse
2944-M	44MB Cartridge Drive
8803	3-COM Ethernet Adapter Board
8909	SCSI Controller
2150	179MB Removable SCSI Hard Drive
2350	332MB Removable SCSI Hard Drive
4820T	Hi-Res 20" Color Monitor
4000-MRGB	Hi-Res Video Controller
9301T-1	Scanner Controller Card

Computer, Personal — International Technology Corp., McLean, VA — ITC PC 386/33-TE

The TCS-300, based on the Sharp Model JX-300 Scanner, is a versatile flatbed color scanner ideally suited for scanning different sized documents or for scanning information from bound material. The scanner may be set to operate in either color or monochrome modes up to 300 x 300 dots per inch resolution. The TCS-300 is compatible with IEEE-488 (GPIB) interface.

Computer, Personal — Mitek Systems, Inc., San Diego, CA — 610TE

The 610TE is a general purpose computer workstation based on the Apple Computer Macintosh IIsi OEM. Each workstation is equipped with:

- Motorola MC68030 32 bit CPU (20MHz)
- Embedded Page Memory Management Unit (PMMU)
- Optional Motorola MC6882 Floating-point Coprocessor
- 5MB Main Memory (1MB on Motherboard, 4MB in Memory Bank)
- One Option NuBus Expansion Slot
- One Apple Desktop Bus (ADB) Ports
- TEMPEST Apple ADB Mouse
- TEMPEST Apple ADB Extended Keyboard
- Two RS-232/RS-422 (LocalTalk) Ports (Printer/Modem Ports)
- SCSI Port
- 1.44MB 3.5" internal floppy disk drive

Equipment Category	**Manufacturer City, State Description**	**Model No.**

(Continued) 610TE

- Built-in 8 Bit Video, up to 640 x 480 resolution
- Sound Input Port
- Apple Sound Chip generates 8 bit stereo sampling at 44.1 kHz and includes four-voice wave-table synthesis, internal speaker
- Monaural 8 bit sound with digital-analog conversion using 11 or 22 kHz sample rate
- 100-270 VAC, 47-63 Hz, self configuring AC power unit
- Power cord included
- System software, Hypercard and manual included

Base System:

610TE	TEMPEST Macintosh IIsi, Extended Keyboard & Mouse

Configured Options:

Model	Description
610TE-40/5	Basic Unit with 40 MB removable hard drive and 5MB RAM
610TE-44/5	Basic Unit with 44MB Syquest Cartdridge Drive and 5MB RAM
610TE-80/5*	Basic Unit with 80 MB removable hard drive and 5MB RAM

Note: This CPU configuration supports the apple A/UX Operating System

Additional Factory Installed options available for the 610TE

600M102	16MB RAM Upgrade (Brings System Total to 17MB)
610M354*	RasterOps 8L 8 Bit Video Board
610M356*	RasterOps 24L 24 Bit Video Board
610M373*	Apple Macintosh 8*24GC Video Display Card/Graphics Accel
600M376	2MB DRAM for Apple 8*24GC Video Card
600M377	8MB DRAM for Apple 8*24GC Video Card
610M420*	EtherTalk Interface
610M501	Apple NuBus Slot Adapter Card (incl. Coprocessor MC68882)

* Requires NuBus Adapter Slot Card option (610M501)

Additional User Installable options available for the 610TE:

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	610TE
	600M201	Spare 40MB Removable Hard Disk
	600M202	Spare 80MB Removable Hard Disk
	600U204	Blank Syquest 44MB Removable Cartdridge
	600M301	Apple 12"High Resolution Monochrome Monitor
	600M302	Apple 13"High Resolution Color Monitor
	600M400	LocalTalk Network Interface
	600M401	10 Meter Localtalk Cable
	600M402	25 Meter LocalTalk Cable
	600U501	Spare Extended Keyboard
	600M502	Microphone
	600U504	Spare Mouse
	600M600	Universal Monitor Stand
	600M603	Hard Disk Drive Locking Device
Computer, Personal	Mitek Systems, Inc. San Diego, CA	650TE

Apple Macintosh IIx Personal Computer with a 68030 CPU and 68882 coprocessor. Each 650TE is equipped with an extended keyboard and mouse, six NuBus expansion slots and five I/O ports (2 Desktop Bus ports, 2 RS-232/RS-422 serial ports and 1 SCSI port). SIMMS RAM supports up to 32MB of main memory, Internal mass storage consists of one 1.44MB diskette drive capable of reading DOS, OS/2, and Apple formats and up to three additional disk drives. All mass storage devices feature the security and flexibility of removable media/drives. Each 650TE includes the Macintosh Operating System, a Medeco Enhanced Security Power Lock (front panel), and User Documentation. The 650TE may also be configured with additional monitors, communication/networking interfaces, and other options. Options allow the 650TE to be operated in a desktop, 19" rack mount, or "TOWER" configuration.

Configured Options:

Model Number	Description	
650TE/1	Base Unit Plus:	1MB Main Memory
650TE/4	Base Unit Plus:	4MB Main Memory
650TE-40/1	Base Unit Plus:	1MB Main Memory 40MB Removable Hard Drive
650TE-40/4	Base Unit Plus:	4MB Main Memory 40MB Removable Hard Drive
650TE-80/1	Base Unit Plus:	1MB Main Memory 80MB Removable Hard Drive
650TE-80/4*	Base Unit Plus:	4MB Main Memory 80MB Removable Hard Drive

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	650TE

* Note: This CPU configuration supports the Apple A/UX Operating System available from Apple.

Additional Options Available on all Models:

Option Number	Option Description
650M100	1MB Memory Expansion
650M101	4MB Memory Expansion
650M200	3.5" 1.44MB Diskette Drive
650M201	40MB Removable Hard Drive
650M202	80MB Removable Hard Drive
650M203	44MB Removable Cartridge Hard Drive
650M300	12" Monochrome Monitor
650M301	12" Monochrome Monitor with Apple 8 bit Video Card
650M302	13" Color Monitor with Apple 8 bit Video Card
650M303	13" Color Monitor
650M350	Apple 8 bit Video Card
650M400	LocalTalk Interface Box with 2 Meter Cable
650M501	Extended Keyboard
650M502	Mouse
650M600	Universal Monitor Stand
650M601	Tower Configuration Pedestal Kit
650M602	19" Rack Mounting Kit
650M603	Hard Disk Drive Locking Device

Computer, Personal — Mitek Systems, Inc., San Diego, CA — 660TE

The 660TE is a general purpose computer workstation based on the Apple Computer Macintosh IIfx OEM. Each workstation is equiped with:

- Motorola MC68030 32 bit CPU (40MHz)
- Embedded Page Memory Management Unit (PMMU)
- Motorola MC68882 Floating-point Coprocessor
- 32kB SRAM Cache Memory (Zero-Wait-State)
- 4MB Main Memory (in Memory Bank A)
- Six NuBus Expansion Slots
- One Processor Direct Slot
- Two Apple Desktop Bus (ADB) Ports
- TEMPEST Apple ADB Mouse
- TEMPEST Apple ADB Extended Keyboard
- Two RS-232/RS-422 (LocalTalk) Ports (Printer/Modem Ports)
- SCSI Port
- 1.44MB 3.5" internal floppy disk drive (FDHD)
- Medeco Enhanced Security Power/Keyboard Lock

Equipment Category	Manufacturer City, State Description	Model No.

(Continued) 660TE

- Apple Sound Chip generates 8 bit stereo sampling at 44.1 kHz and includes four-voice wave table synthesis, internal speaker
- 100-270 VAC, 47-63 Hz, self configuring AC power input
- Power cord included
- System software, Hypercard and manual included

BASE SYSTEM:

660TE: TEMPEST Macintosh IIfx, Extended Keyboard & Mouse

Configured Options:

Model#	Product Description
660TE-40/4	Base Unit with 40MB Removable Hard Drive & 4MB RAM
660TE-40/8	Base Unit with 40MB Removable Hard Drive & 8mb RAM
660TE-80/4*	Base Unit with 80MB Removable Hard drive & 4MB RAM
660TE-80/8*	Base Unit with 80MB Removable Hard Drive & 8MB RAM

* Note: This CPU Configuration supports the Apple A/UX Operating system

Additional Factory Installed options available for the 660TE

OPtion #	OPTION DESCRIPTION
660M101	4MB SIMM Memory Expansion
660M102	16MB SIMM Memory Expansion
660M200	3.5-inch 1.4 MB Diskette Drive (2nd Drive)
600M203	SyQuest 44MB Removable Cartridge Hard Drive
660M354	RasterOps 8L Hihg Resolution 8-bit graphics board
660U355	RasterOps 8L VRAM Expansion Kit
660M356	RasterOps 24L High Resolution 24-Bit graphics board
660M357	RasterOps 800GC Graphics Accelerator Board
660M358	4MB DRAM Expansion Kit for RasterOps 800GC
600M359	16MB DRAM Expansion Kit for RasterOps

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	660TE
		800GC
	600M370	Apple Macintosh 4*8 8-bit Display Card
	600U371	Apple Macintosh 4*8 Display Card VRAM Expansion KIT
	600M373	Apple Macintosh 8*24 24-bit Display Card
	600M420	Ethernet NB card
	Additional User Installable options available for the 660TE	
	600M201	Spare 40MB Removable Hard Drive
	600M202	Spare 80MB Removable Hard Drive
	600U204	Blank Syquest 44MB Removable Cartdridge
	600M300	Apple 12" High Resolution Monochrome Monitor
	600M303	Apple 13" High Resolution Color Monitor
	600M400	LocalTalk Network Interface Kit With 2 meter cable
	600M401	10 Meter LocalTalk Network
	600M402	25 Meter Localtalk Network Cable
	600U501	Spare Extended Keyboard
	600U504	Spare Mouse
	600M600	Universal Monitor Stand
	600M601	Tower configuration pedestal kit
	600M602	19" Rack Mounting Kit
	600M603	Hard Disk Drive Locking Device
Computer, Personal	Mitek Systems, Inc. San Diego, CA	T5270ECI
	Apple Macintosh IIci Personal Computer includes a 25MHz 68030 CPU and 68882 coprocessor. Each T5270Eci includes an extended keyboard and mouse, three NuBus expansion slots and five I/O ports (2 DeskTop Bus ports, 1 RS-232 serial port, 1 RS-422 serial port and 1 SCSI port). Memory configuration of the base CPU is 4MB (RAM) expandable to 8MB (32MB with System 7.0). Internal mass storage consists of one 1.44MB floppy diskette drive capable of reading DOS, OS/2, and Apple formats and one additional disk drive. All mass storage devices feature the security and flexibility of removable media/drives. Each T5270Eci includes the Macintosh Operating System and user documentation. The T5270Eci can be configured with various monitors, communication/networking interfaces, and other options listed below.	
	Configured Options:	
	Model Number	Description

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	T5270ECI
	T5270Eci	Base Unit Plus: 4MB Main Memory
	T5270Eci-40	Base Unit Plus: 4MB Main Memory 40MB Removable Hard Drive
	T5270Eci-80	Base Unit Plus: 4MB Main Memory 80MB Removable Hard Drive
	Additional Options Available on all Models:	
	650M100	1MB Memory Expansion Kit (Makes total 5MB)
	650M101	4MB Memory Expansion Kit (Makes total 8MB)
	650M102	16MB Memory Expansion Kit (Makes total 20MB)
	27X01	Spare 40MB Drive and Tray Assembly
	27X02	Spare 80MB Drive and Tray Assembly
	27023ci	12" Monochrome Monitor (640x480) with internal video interface
	27024ci	13" RGB Monitor (640x480) with internal video interface
	650M400	LocalTalk Connector Box (w/2 meter network cable)
	650M401	10 meter LocalTalk Network Cable
	650M402	25 meter LocalTalk Network Cable
Computer, Personal	Mitek Systems, Inc. San Diego, CA Apple Macintosh IIcx Personal Computer includes a 16MHz 68030 CPU and 68882 coprocessor. Each T5270Ecx includes an extended keyboard and mouse, three NuBus expansion slots and five I/O ports (2 DeskTop Bus ports, 1 RS-232 serial port, 1 RS-422 serial port and 1 SCSI port). Memory configuration of the base CPU is 4MB (RAM) expandable to 8MB (32MB with System 7.0). Internal mass storage consists of one 1.44MB floppy diskette drive capable of reading DOS, OS/2, and Apple formats and one additional disk drive. All mass storage devices feature the security and flexibility of removable media/drives. Each T5270Ecx includes the Macintosh Operating System and user documentation. The T5270Ecx can be configured with various monitors, communication/networking interfaces, and other options listed below. Configured Options:	T5270ECX

Equipment Category	Manufacturer City, State Description	Model No.

(Continued) T5270ECX

Model Number	Description
T5270Ecx	Base Unit Plus: 4MB Main Memory
T5270Ecx-40	Base Unit Plus: 4MB Main Memory 40MB Removable Hard Drive
T5270Ecx-80	Base Unit Plus: 4MB Main Memory 80MB Removable Hard Drive

Additional Options Available on all Models:

650M100	1MB Memory Expansion Kit (Makes total 5MB)
650M101	4MB Memory Expansion Kit (Makes total 8MB)
650M102	16MB Memory Expansion Kit (Makes total 20MB)
27X01	Spare 40MB Drive and Tray Assembly
27X02	Spare 80MB Drive and Tray Assembly
27023	12" Monochrome Monitor (640x480) w/8-bit video card
27024	13" RGB Monitor (640x480) w/8-bit video card
650M400	LocalTalk Connector Box (w/2 meter network cable)
650M401	10 meter LocalTalk Network Cable
650M402	25 meter LocalTalk Network Cable

Computer, Personal — Mitek Systems, Inc., San Diego, CA — T5300-E

Basic Configuration:

The T5300E is a TEMPEST version of the IBM PS/2 Model 70 desktop computer. It features the 80386 CPU, 1MB system RAM, 1.44MB 3.5" Floppy Drive, a 60MB Removable Hard Drive, 101-key Keyboard, VGA Port, a Serial and Parallel Port.

It may be configured with up to 13MB of RAM, 80387 Coprocessor, Multi-protocol Communications Adapter, Ethernet, or a 3270 Connection.

Additional Options Available:

30001	60MB Removable Hard Drive
30002	12" Color VGA Display
30003	Mouse
30004	Multi-protocol Communications Adapter

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	T5300-E
	30005 3Com Etherlink MC	
	30006 80387/16MHz Coprocessor	
	30007 3270 Connection Adapter Card	
	30008 2MB RAM Expansion (3MB Total System)	
	30009 4MB RAM Expansion (5MB Total System)	
	30010 12MB RAM Expansion (13MB Total System)	
Disk Drive	Candes Systems Incorporated Harleysville, PA	601T-XX
	The Model 601T-XX is a general purpose dual disk drive cabinet with a power supply and 2 SCSI connectors. The 601T-XX can be configured with one or two drives. The 601T-XX accepts removable cartridge and standard hard drives.	
	Configured Options:	
	601T-01 HD-01 Internal 44MB Removable Cartridge Disk Drive (SYQUEST SQ555)	
	CA-01 36" TEMPEST Peripheral SCSI Cable (25-pin D Connector)	
	TE-01 TEMPEST SCSI Terminator	
	601T-02 HD-01 Internal 44MB Removable Cartridge Disk Drive (SYQUEST SQ555)	
	HD-01 Second Internal 44MB Removable Cartridge Disk Drive (SYQUEST SQ555)	
	CA-01 36" TEMPEST Peripheral SCSI Cable (25-pin D Connector)	
	TE-01 TEMPEST SCSI Terminator	
Display	Candes Systems Incorporated Harleysville, PA	2319T-XX
	The 2319T-XX is a TEMPEST version of the Radius TPD/19 Two Page High resolution 19 inch Monochrome Display. The 2319T-XX is designed to generate photographic-quality images in 256 shades of gray on a Macintosh II System. The Display is compatible with the Macintosh SE, SE/30 and compatibles. The Display supports Windows 3.0, VGA, EGA, CGA, MDA, and Hercules Modes.	

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	2319T-XX

Configured Options:

Model	Basic Unit w/ Included Options
2319T-01	I/O-1 One BNC connector for RS-343A interface

Display

Hetra Computer & Communications — 4820T
Sebastian, FL

The Model 4820T is a 20" High Resolution Color Monitor which automatically adapts to any scan line frequencies and is compatible with any high resolution video application up to 1280 x 1024 pixels. The Model 4820T inputs are triax connectors designed for a RGB analog input signal with a separate TTL sync, a composite TTL sync or an analog (0.3Vp-p) sync on green signal.

Display, Color

Candes Systems Incorporated — 2219T-XX
Harleysville, PA

The 2219T-XX is a 19-inch P22 Phosphor, PIL,Ultra High Resolution Color Monitor, with a 1600H x 1200V format (non-interlaced) resolution and a scan rate of 46 to 80kHz (Auto-Trak) horizontal, 47 to 80Hz (Auto Trak) vertical. The aspect ratio is 4:3 and a brightness of 30fl. calibrated and internal or external synce selection at rear panel (internal-composite horizontal and vertical sync combined on green video channel). Switch-selectable inputs for impedance matching (high Z or 75 ohms).

Configured Options:

Model No.	Basic Unit w/Included Options
2219T-01	IO-01 3 BNC Connectors for RGB Input; Sync on Green
	DP-01 CRT Pitch = 0.31mm

Display, Color

Delta Data Systems Corp. — DM1490TE
Columbia, MD

The DM1490TE is an analog 14 inch multi-scan color monitor with resolution of up to 1024 by 768. The monitor features automatic adjustment to scan frequencies of 30 to 35kHz and autosensing of 110 or 220 volt power. The DM1490TE is based on a CTX model

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued) CVP-5468 color monitor. Model Number: Basic Unit with included options: DM1490TE Monitor Additional options available on all models: RSA-001 9 pin to 9 pin cable RSA-002 15 pin to 9 pin cable RSA-003 25 pin to 9 pin cable	DM1490TE
Display, Color	Hetra Computer & Communications Sebastian, FL The 4814T is a 14" Multiscan Color Display.	4814T
Facsimile	Ilex Systems, Inc. Milpitas, CA The ILEX 750T TEMPEST facsimile is a fully-featured, desk-top facsimile transceiver with 30 sheet automatic document feeder providing either synchronous or asynchronous digital communications through STU-III, STU-II, KG-84A/C or other GFE encryption equipment. Interface types: RS-232C Asynchronous (300bps - 19.2kbps) Synchronous (2.4kbps - 9.6kbps) Scanning Method: Flat Bed by Solid Image Sensor (CCD Array) Recording Method: High Speed Thermal Printer (196 x 204 lpi maximum) with automatic paper cutter and maximum 8.5" x 328-foot paper roll Standard Protocols Supported: MIL-STD-188-161B Type 1 Compressed and STANAG 5000 Type 1 Compressed up to 9.6kbps CCITT Nonstandard Protocols Supported: R3312/TA and R2112T (both synchronous and asynchronous) and V3500T Formats: Black and white and 16 shade halftone grayscale Original Document Size: Maximum 11" x 39.4" Minimum 5.8" x 2.9" Auto Reduction to 8.5" width Additional features:	750T

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	750T
	Standard and fine resolutions with 3-level contrast control Transmission/reception, activity and configuration reports Copy mode Transmission verification stamp Auto-dial, polling and turn-around polling capabilities Statistical multiplexer, X.25 PAD and digital PBX compatible One-way ASCII terminal mode Document storage, retrieval and distribution through PC-based software Dimensions: 16.5"W x 16.0"D x 7.8"H Weight: 38 lbs. Power: 115/230 VAC, 50/60 Hz Switchable, selectable, internally	
Facsimile	Ilex Systems, Inc. Milpitas, CA	760T-X
	Model 760T - the basic configuration. The Ilex 760T TEMPEST facsimile is a fully-featured, desk-top facsimile transceiver with 30 sheet automatic document feeder providing either synchronous or asynchronous digital communications through STU-III, STU-II, KG-84A/C, KY-57/58 or other GFE encryption equipment. Interface types: RS-232C Digital asynchronous (300bps - 19.2kbps) synchronous (2.4bps - 9.6kbps) Scanning Method: Flat Bed by solid Image Sensor (CCD Array) Recording Method: High Speed Thermal Printer (196 x 204 lpi maximum) with automatic paper cutter and maximum 8.5" x 328-foot paper roll Standard Protocols Supported: MIL-STD-188-161B Type 1 Compressed and STANAG 5000 Type 1 compressed up to 9.6kbps CCITT Nonstandard (Modified G3) Protocols Supported: R33121/TA, R2112T (both sychronous and asychronous) and V3500T Formats: Black and white and 16 shade halftone grayscale Original Document Size: Maximum 11" x 39.4"	

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	760T-X Minumum 5.8" x 2.9" Auto Reduction to 8.5 width

Additional Features:
Automatic protocol detection in receive mode
One touch protocol programming in transmit mode
Standard and fine resolutions with 3-level contrast control
Transmission/reception, activity and configuration reports
Copy mode
Transmission verification stamp
Auto-dial, polling and turn-around polling capabilities
Statistical multiplexer, X.25 PAD and digital PBX compatible
One-way ASCII terminal mode
Document storage, retrieval and distribution through PC-based software
Dimensions: 16.5"W x 16.0"D x 7.8"H
Weight: 36lbs.
Power: 115/230 Vac, 50/60 Hz Switchable, selectable internally

Facsimile

Time & Space Processing, Inc. 9100-X-XX
Sunnyvale, CA

The TSP 9100-x-xx is a digital facsimile machine. Each facsimile is packaged in a lightweight, portable package and is equipped with an 8-1/2" wide scanner (F2010-1507), thermal printer (F2010-0384) and paper cutter (F2010-1333). The 9100-x-xx Easy Fax comes preconfigured as shown below with one or more of the following features: Strategic Group 3 protocols, MIL-STD-188-161A (STANAG) protocols, MIL-STD-188-161A (STANAG with FEC) protocols, a 110 or 110/220 switchable power supply and VDE power isolation.

Model No.	Base Unit with Following Included Features
TSP 9100-E	VDE Isolation/220v Base with Step Down Transformer Strategic G3 Protocol MIL-STD-188-161A Protocol (STANAG with FEC)
TSP 9100-A-60	Standard Base Strategic G3 Protocol MIL-STD-188-161A Protocol (STANAG with FEC)

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	9100-X-XX 110 VAC Power Supply
	TSP 9100-A-65	Standard Base Strategic G3 Protocol MIL-STD-188-161A Protocol (STANAG with FEC) 110/220 Switchable VAC Power Supply
	TSP 9100-A-20	Standard Base Strategic G3 Protocol 110 VAC Power Supply
	TSP-9100-A-25	Standard Base Strategic G3 Protocol 110/220 VAC Switchable Power Supply
Interface, Communications	Mitek Systems, Inc. San Diego, CA	SPC-12TE

The SPC-12TE is a Serial Protocol Communications Interface that provides signalling protocols compliant with MIL-STD-161B, Type 1 Equipment. The SPC-12TE enables digital facsimile products to communicate in the MIL-STD-188-161B Type 1 modes of operation. The SPC-12TE is designed to allow for placement directly below the facsimile to conserve desktop space. The SPC-12TE communicates with the facsimile in standard RS-232 and with Government Furnished Equipment in MIL-STD-188-114.

The SPC-12TE has two operating modes; 1) normal mode (MIL-STD-161B Type 1 protocol) and 2) bypass mode (synchronous/asynchronous protocols). The SPC-12TE is transparent to the communications process once the proper selections have been made from the front panel.

The SPC-12TE operates at 50/60Hz and 115 (+/- 10%) VAC or 220/240 (+/- 10%) VAC. The input power operating characteristics are switch selectable on the SPC-12TE enclosure.

Standard Features:

- External clock
- Normal mode: meets MIL-STD-188-161B Type 1 extended protocol, simplex, half duplex, full duplex, broadcast, uncompressed, F.E.C., handshake mode protocol.
- Bypass mode: asynchronous and synchronous protocols

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	SPC-12TE

- Auxiliary power output for facsimile

Resolution: Normal mode (161B)
- a. 100 x 200 LPI(DPI)
- b. 200 x 200 LPI(DPI)
- c. 100 x 100 LPI(DPI)

Data compression: MH coding
Forward error correction: BCH coding (normal mode)
Protocol type:
Normal mode: MIL-STD-161B Type 1 compatible fax
Bypass mode compatibility: (equipments based upon the following)
Mitek 850T/850T-1
Ricoh R-2112T
ImageNet
Ricoh R-2100
Ricoh 3500T (Rev 1 & 2) SST (Rev J)
Ricoh R-2110
Ricoh R-2110M
Ricoh R3312T(A)
Interface: Stu II, STU III, KG-84, KG-84A
Dimensions: Stand-alone - 17.4(w) x 13.2(d) x 1.8(h) inches

LAN, Fiber Optic

FiberCom, Incorporated — 7441-XX
Roanoke, VA

The WhisperLan/DPT-T is a dual ring, fault-tolerant, IEEE 802.3 compatible fiber optic local area network. The standard 7441-61 configuration includes intra-ring operation, 120V supply voltage, desk top packaging, 62.5/125um fiber, and ST style fiber optic connectors.

Configured Options:

Base Part Number: 7441-XX

7441-0X: No bypass switch
7441-5X: 50/125 Fiber Size
7441-6X: 62.5/125 Fiber Size

X	Connector	Power Req.	Mounting
1	ST	120V/60Hz	Desk Top
2	ST	120V/60Hz	Rack
3	ST	240V/50Hz	Desk Top
4	ST	240V/50Hz	Rack

Equipment Category	Manufacturer City, State Description	Model No.	
	(Continued)	7441-XX	
	5 SMA	120V/60Hz	Desk Top
	6 SMA	120V/60Hz	Rack
	7 SMA	240V/50Hz	Desk Top
	8 SMA	240V/50Hz	Rack
Network	Digital Equipment Corporation Nashua, NH	RF-H4005-XX	

Local Area Network Communications Network. The RF-H4005-xx is fully compliant with IEEE 802.3. It provides the heartbeat function and employs fiber optic connectivity between the TEMPEST Ethernet network and the TEMPEST device connected to the network. The basic model includes the RF-BNS01-xx, RF-Ethernet cable kit which includes the fiber optic cable and the DC power cable and the BNE-2A-xx network interconnect coaxial cable.

Model Numbers:

RF-H4005-AA TEMPEST Ethernet Transceiver, 120 VAC, 60 Hz.
RF-H4005-AB TEMPEST Ethernet Transceiver, 240 VAC, 50 Hz.

Peripheral Cabinet — Mitek Systems, Inc., San Diego, CA — T5401E

The T5401E TEMPEST SCSI Peripheral Cabinet is a general purpose mass storage system. Each T5401E Cabinet can accomodate one industry standard full-height device or upto two industry standard half-height devices. The cabinet uses the Small Computer Systems Interface (SCSI) for the SCSI interface readily connects to any computer with a SCSI controller (Apple Macintosh, IBM or compatible computers, for instance). Six cabinets with full height devices or three cabinets with half-height devices can be joined together to form a single unit. Mass storage devices can be mixed and matched subject only to SCSI ID limitations. Standard features include: Supplied with one full-height, one half-height, or two halh-height storage devices of either 3.5" form factor or 5.25" form factor. Stackable interconnecting cabinet design for maximum flexiblity. Front door provides easy access to removable media and removable drives. LED's on door show drive and cabinet power status. Single latch per door. Extended cables allowing desk or floor use. Single power switch. 110/220 VAC,50/60 Hz.

Configured Options:

Model	Basic Cabinet with Included Options (At least one option must be ordered)

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	T5401E
	T5401E-B	Basic cabinet with SCSI cable.
	T5401E-XM	Expansion cabinet,factory installed.
	T5401E-XU	Expansion cabinet,Field service installed.

Options Available for all Models:

Option	Description
401TP150-H	150 MB 1/2 height streaming tape drive.
401TP4MM-F	1.3 GB DAT 4 mm full height tape drive.
401TP8MM-F	2.5 GB DAT 8 mm full height Syquest removable cartridge drive.
401RM45S-H	45 MB 1/2 height Syquest removable cartrige drive.
401RM45B-MH	45 MB 1/2 height Bernoulli removable cartridge drive,master.
401RM45B-DF	Dual 45 MB Bernoulli removable cartridge drives,full height.
401RM45B-SF	45 MB full height Bernoulli removable cartdrige drive,slave.
401OPCDR-H	550 MB CD ROM 1/2 height drive.
401OPWOR-F	640 MB WORM drive,full height.
401OP128-H	128 Floppy Optical drive,1/2 height.
401OPEOD-F	650 MB Erasible Optical Drive,full height.
401HD105-H	105 MB 1/2 height Winchester Disk.
401HD200-H	200 MB 1/2 height Winchester Disk.
401HD350-SF	350 MB full height Winchester disk.
401HD350-FF	350 MB full height Winchester Disk,high speed access.
401HD400-H	400 MB 1/2 height Winchester Disk.
401HD700-F	700 MB full height Winchester Disk.

Printer, Color Video — Hetra Computer & Communications, Sebastian, FL — 3443T

High resolution color video printer. The 3443T is a full color video printer that provides the customer the highest quality, accuracy and resolution of brilliant color images. The 3443T contains a built-in, high speed intelligent video processing interface which eliminates the need to write any special software to drive the printer. In addition, the 3443T has the ability to handle any analog or TTL video image up to a 1280 x 1024 resolution.

Equipment Category	Manufacturer City, State Description	Model No.

Printer, Dot Matrix

Dataproducts New England, Inc. 90X0-2T-X
Wallingford, CT

The 90X0-2T-X is a family of dot matrix printers. The 9000 models emulate the most popular 9 pin dot matrix printers on the market, i.e., IBM ProPrinter, and the Epson FX-86/286E.

Model Nos.

9030-2T-X - Basic configuration: 80 column, 250 cps at 10 cpi, 9 wire dot matrix, universal power supply, Centronics and serial interface

9040-2T-X - Basic configuration: 132 column, 250 cps at 10 cpi, 9 wire dot matrix, universal power supply, Centronics and serial interface

Available Options on All Models:

-R Rugged option for MIL-STD-810D compliance
-E EMI option for MIL-STD-461C compliance
-M Multi-interface option; RS232, RS422, RS423, MIL-STD-188C, and KSR
-C Color option

Printer, Dot Matrix

North Atlantic Industries, Inc. P24-Te
Hauppauge, NY

The P24-Te is a dot matrix impact printer, capable of printing at speeds up to 240 cps in the draft mode. In the letter quality mode, the P24-Te prints at 80 cps, and in the correspondence mode at 120 cps. The print line is 136 columns at 10 pitch, graphics resolution is 180 x 180 dpi and the standard buffer size can be set to 7K or 23K. Full Epson Emulation and standard Gothic and Courier resident fonts ensure software compatibility. The P24-Te prints seven colors and operates at a quiet 55 dB. It interfaces using a standard Centronics Parallel Interface or an optional RS-232 Serial Interface.

Model Number	Description
P24-Te (F0)	Basic Configuration 110V US, Parallel Interface, US line cord

Configured Options:

F0	Line Cord 110V US
F1	220V Euro
F2	240V United Kingdom
F3	220V Danish
F4	220V Swiss

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	P24-Te

Accessories:

A04-S0007-00	Single Bin Sheet Feeder
A04-S0008-00	Second Bin Option
AP40041A	Black Fabric Ribbon
AP40040A	Color Ribbon
APTAWQ2801A	Prestige Elite/Tiempo Font Cartridge
APFAWQ2901A	OCR-A/Orator Font Cartridge
ATPAWQ1501A	64K Expansion Buffer Cartridge
789098	Serial Interface Assembly
787670	Parallel Interface Cable
787671	Serial Interface Cable

Printer, Ink Jet — North Atlantic Industries, Inc., Hauppauge, NY — DeskJet-Te

The NAI DeskJet-Te is an equivalent to Hewlett-Packard's DeskJet product. It uses a plain paper, drop-on-demand thermal inkjet printing method. Print speed is 120 cps in the letter quality mode and 240 cps in the draft mode up to 3 pages per minute. Resolution in the letter quality mode is 300 x 300 dpi and 300 x 150 dpi in the draft mode while full page graphics can be printed at 75, 100, 150, or 300 dpi. The portrait print format includes 5, 6, 10, 12, 16, 67, 20, or 24 pitch printing and 6 or 12 point proportional printing depending on font selection. The landscape print format includes 10, 16, 67, or 20 pitch printing. A built-in 100 sheet feeder handles letter, legal, and A4 size paper while envelopes may be manually fed. Standard features include water-resistant ink, Microsoft Windows 3.0 driver, Centronics parallel, RS-232 serial interfaces, and a 16Kbyte buffer.

Model Number	Description
DeskJet-Te (F0)	Basic Configuration 110V US, US line cord

Configured Options:

F0	Machine Type	110V US
F1		220V Euro
F2		240V United Kingdom
F3		220V Danish
F4		220V Swiss

Accessories:	
Font Cartridges	Full line of HP InkJet font cartridges

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	DeskJet-Te
	RAM Cartridges	128Kbyte and 256Kbyte
	Soft Fonts	Full line of HP Inkjet soft fonts
	Language Cartridges	Epson FX-80 and IBM Proprinter III
	Interface Cables	Serial and Parallel
Printer, Laser	Hughes Data Systems Anaheim, CA	1L03-T

The 1L03-T Laser Printer is a general purpose laser printer based on the HP Laser Jet III for personal computer and workstation hardcopy output. Each printer includes 1 MB RAM, a Centronics parallel interface, an RS-232-C serial/RS-422A differential serial interface, letter size paper tray and appropriate power cord. The standard printer features a print speed of up to 8 ppm and a 300 dpi text and graphics resolution. The 1L03-T supports additional memory via two memory slots. Add-on font cartridges are supported via two font cartridge openings. Optional I/O is supported through an I/O expansion port.

Options

Power

000	U.S. Version - 115 VAC / 60Hz
001-022	International Version - 220-240 VAC / 50 Hz

Memory Boards

101	1 MB Memory Expansion
102	2 MB Memory Expansion

Note: The printer random access memory (RAM) may be expanded by installing 1 or 2 MB memory boards in the available two memory slots, for up to a total of 5 MB RAM.

Font Cartridges

600	Master Key Cartridge (two supplied with printer)
601	Word Perfect
602	Microsoft
603	Polished Worksheets
604	Persuasive Presentations
605	Forms Etc.
606	Bar Codes and More

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	1L03-T
	607 Test Equations	
	608 Global Text	
	609 Great Start	
	610 ProCollection	
Printer, Laser	Mitek Systems, Inc. San Diego, CA	104TE

Desktop Laser Printer based on the 4 page-per-minute Hewlett-Packard LaserJet IIP printer. With the optional LocalTalk interface (includes Adobe PostScript cartridge), the 104TE fully supports Macintosh software and hardware.

Configured options:

Model Number:

104TE	50/60Hz	110-115VAC
104TE-1	50/60Hz	220-240VAC

Special features included:

Print Speed: 4 Pages Per Minute
Interfaces: RS-232-C (300-19,200 baud)
RS-422-A (300-19,200 baud)
Parallel (DB25)
Paper size: Letter, Legal, A4, Executive, Envelopes
Correct Order Output
Internal fonts: 14
Internal symbol sets: 24
1 Font Cartridge Slot
Memory: 512kB (300 dpi half-page graphics)
Memory Expansion: 2 Memory slots available allows for up to 4.5MB total memory using 1MB and 2MB memory upgrades.

Additional options available on all models:

108M101	1MB memory upgrade (Total 1.5MB)
108M102	2MB memory upgrade
104M425	LocalTalk Interface Option
Includes:	Basic Printer with LocalTalk Interface, Adobe PostScript Cartridge, 1MB memory upgrade.
104M600	Lower Cassette: Letter Size
104M601	Lower Cassette: A4 Size

Equipment Category	Manufacturer City, State Description	Model No.
Printer, Laser	Mitek Systems, Inc. San Diego, CA	108TE

Desktop Laser Printer based on the 8 page-per-minute Hewlett Packard LaserJet III printer. The LaserJet III utilizes HP's innovative Resolution Enhancement Technology and features HP's PCL printer language with integrated HP-GL/2 pen plotter language. With the optional Adobe PostScript cartridge and AppleTalk interface, the 108TE fully supports Macintosh software and hardware.

Configured options:

Model Number:

108TE	50/60Hz	110-115VAC
108TE-1	50/60Hz	220-240VAC

Special features included:

Print Speed:	8 Pages Per Minute
Interfaces:	RS-232-C, RS-422-A, Centronics Parallel
Paper Size:	Letter, Legal, A4, Executive, Envelopes
Correct Order Output	
2 Font Cartridge Slots	
Memory:	1MB (expandable to 5MB), 300 dots per inch full-page graphics

Additional options available on all models:

Main Memory Options:	Allow 2, 3, 4, and 5MB configurations
108M101	1MB additional memory (up to 2 may be used)
108M102	2MB additional memory (up to 2 may be used)
108M420	AppleTalk Interface. Requires PostScript Cartridge and 1MB of additional memory (2MB total memory)

Multi-user, 4 port serial interface card:

108M400	4 port interface with 256kB Buffer Memory
108M401	4 port interface with 1MB Buffer Memory

Multi-user interface provides four serial ports and a buffer that supports spooling and allows multiple users

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	108TE

to share the printer. The interface utilizes intelligent buffer management and job recognition algorithms. All four devices can input data simultaneously at up to 19.2K baud, and activity by any device will neither stop nor slow the data transmission of the other devices.

Multi-user 4 port parallel interface card:

108M410	4 port interface for high performance graphics support

Printer, Laser	Mitek Systems, Inc. San Diego, CA Base System:	130TE

The 130TE TEMPEST PostScript Laser Printer is based on and has all of the features of the QMS PS 810. These include: a 16MHz Motorola based controller with 1MB of ROM and 2MB of RAM (an additional 1MB of RAM is optional), 35 resident fonts fully scalable and rotatable from 4 points upward, emulation of the Diablo 630, HP LaserJet Plus (HP-PCL), and the HP7475A Plotter (HP-GL), a resolution of 300x300 dots per inch, and RS-232C, RS-422/AppleTalk, Centronics parallel interfaces.

Configured Options:

MODEL NUMBER:

130TE	50/60Hz	110-115VAC
130TE-1	50/60Hz	220-240VAC

Additional Options Available on all Models:

130M100	1MB Additional Memory

Printer, Laser	Mitek Systems, Inc. San Diego, CA	T5271E

The T5271E is a general purpose Laserwriter based on the Apple Computer Laserwriter IINT OEM. Each unit is equipped with:

Cannon LBP SX Laser Xerographic Engine
12MHz 6800 Processor
1MB ROM
2MB RAM
RS-422 LocalTalk Interface
RS-232C Interface
300x 300 dots per inch (dpi),full page

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	T5271E

11 fonts Families
8 Pages per minute maximum throughout
Adobe PostScript and subset of Diablo 630 commands
Letter, Legal, A4 and B5 size paper trays
16 to 20 pound single-sheet photocopy bond
8 to 34 pound letterhead and colored stock
Transparency overhead film
Envelope cassette capacity of 15 envelopes
90 to 126 VAC 50/60 Hz
Shielded Power cord included
Utilities software and manual included

Options available for T5271E

600M400 LocalTalk Network Interface Connector Kit
(includes 2 Meter LocalTalk Cable)
600M401 10 Meter LocalTalk Network Cable
600M402 25 Meter LocalTalk Network Cable

Printer, Laser

North Atlantic Industries, Inc. Laser III-Te
Hauppauge, NY

The NAI Laser III-Te is an equivalent to Hewlett Packard's Laser III printer. It can print up to 8 pages per minute producing resolution enhanced 300 dot per inch text and graphics. The Laser III-Te is capable of printing on cutsheet paper, transparencies, and envelopes. Standard features include a 200 sheet input tray, bitmapped and scalable internal fonts, 1MB RAM, and Centronics Parallel, and RS-232-C/RS-422-A Serial (300-19, 200 baud) interfaces. The Laser IIID-Te option includes a second 200 sheet input tray and Duplex printing (both sides of the paper).

Model Numbers	Description
Laser III-Te (F1000) Laser IIID-Te (F1000)	Basic Configuration - 110V US, 1 MB Serial and Parallel interfaces, US line cord

Ordered Options:

1.	F1---	Machine Type	110V US Standard
	F2---		220V Euro English
	F3---		220V Euro German
	F4---		220V Euro Spanish
	F5---		220V Euro French
2.	F-0--	Memory	0 MB Additional
	F-1--		1 MB Additional
	F-2--		2 MB Additional
	F-3--		3 MB Additional

Equipment Category	Manufacturer City, State Description		Model No.
	(Continued)		Laser III-Te
	F-4--		4 MB Additional
	3. F--0-	Optional	None
	F--1-	Interfaces	Serial ShareSpool, 1 Meg
	F--2-		Serial ShareSpool, 256K
	F--3-		Parallel ShareSpool, 1 Meg
	F--4-		AppleTalk
	4. F---0	Line Cord	110V US
	F---1		220V Euro
	F---2		240V United Kingdom
	F---3		220V Danish
	F---4		220V Swiss

ACCESSORIES:

Paper Trays	Letter, Legal, A4, Executive, Envelope
Font Cartridges	Full line of standard HP bitmapped and scalable font cartridges
Language Cartridges	Standard HP Adobe Postscript, Epson Fx/IBM Proprinter
Interface Cables	Serial, Parallel, ShareSpool, and Appletalk

Printer, Laser

North Atlantic Industries, Inc. Laser IIP-Te
Hauppauge, NY

The NAI Laser IIP-Te is an equivalent to Hewlett Packard's Laser IIP printer. Producing up to 4 pages per minute with a 300 dot per inch resolution the Laser IIP-Te is capable of printing on cutsheet paper, transparencies, and envelopes. Standard features include a 50 sheet multi-purpose input tray, fourteen internal fonts, 512K RAM and Centronics Parallel and RS-232-C/RS-422-A Serial (300-19,200 baud) interfaces.

Model Number	Description	
Laser IIP-Te (F1000)	Basic Congfig.	110 V US, 512K Serial and Parallel interfaces US line cord

Configured Options: (build configuration number from list below)

1.	F1---	Machine Type	110V US Std.
	F2---		220V Euro English
	F3---		220V Euro German
	F4---		220V Euro Spanish
	F5---		220V Euro French
2.	F-0--	Memory	0 MB Additional
	F-1--		1 MB Additional

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	Laser IIP-Te
	F-2--	2 MB Additional
	F-3--	3 MB Additional
	F-4--	4 MB Additional
	3. F--0- Interfaces	Serial and Parallel
	F--1-	Serial ShareSpool
	F--2-	AppleTalk, Serial and Parallel
	4. F---0 Line Cord	110V US
	F---1	220V Euro
	F---2	220V United Kingdom
	F---3	220V Danish
	F---4	220V Swiss
	Accessories:	
	H33472A	Lower Cassette 250 sheet input tray
	Font Cartridges	Full line of HP font cartridges
	Language Cartridges	Adobe Postscript, Epson Fx/IBM Proprinter
	Interface Cables	Serial, Parallel, ShareSpool and AppleTalk
Scanner	Hetra Computer & Communications Sebastian, FL	9301T-X
	High resolution, high speed flat-bed CCD Grayscale Graphics Scanner capable of capturing 256 levels of gray with 8-bit grayscale or 16 levels of 4-bit grayscale. The 9301T-X accepts originals of 8.5 x 11.7 inches and, with the optional automatic document feeder, can accept up to 8.5 x 14 inch originals. Scaling ranges from 4 to 200%. At 300 dpi and 100% scaling, the 9301T-X has a resolution of 2.8 lines per millimeter in the X and Y directions. Output files are compatible with TIFF, Microsoft Paint, GEM, EPSF, and PC Paintbrush. The basic unit will have a proprietary interface.	
	Configured Options:	
	9301T-1 Basic Unit with Parallel Interface	
	Additional Options:	
	52254 Automatic Document Feeder	
Scanner, Color	SFA, Inc. Landover, MD	TCS-300
	The TCS-300, based on the Sharp Model JX-300 Scanner, is a versatile flatbed color scanner ideally suited for scanning different sized documents or for scanning	

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued) information from bound material. The scanner may be set to operate in either color or monochrome modes up to 300 x 300 dots per inch resolution. The TCS-300 is compatible with IEEE-488 (GPIB) interface.	TCS-300
Server Processor	Digital Equipment Corporation Nashua, NH The RF-VT320-xx is a monochrome text-only video terminal. The screen measures 14" diagonal and is flat. All electronics for the terminal are housed within the monitor. The RF-LK201-xx keyboard is used. One comm port and one printer are included in the basic model. The terminal is set for 120 or 240 volt operation at the factory by a jumper wire. 50 or 60 Hz power can be used. Configured Options: RF-VT320-A2; 120 Volt with attached power cord-no keyboard. RF-VT320-A3; 240 Volt, no power cord, no keyboard. RF-VT320-AA; RF-VT320-A2 with RF-LK201-AA, USA keycaps. RF-VT320-DA; RF-VT320-A2 with RF-LK201-BA, USA/WPS keycaps. RF-VT320-AB; RF-VT320-A3 with RF-LK201-AA, USA keycaps. RF-VT320-DB; RF-VT320-A3 with RF-LK201-BA, USA/WPS keycaps.	RF-DELNI-XX
Server Processor	Digital Equipment Corporation Nashua, NH The RF-DSRVB-XX provides the interface for eight asynchronous RS-232 devices to Digital's TEMPEST Ethernet. The eight serial data communication channels run at rates up to 19.2Kb/s. The local area network connection is supplied by the SIU interface, which provides 10MB/s data throughput to the TEMPEST Ethernet. The TEMPEST Ethernet connection is made by fiber optic link using a TEMPEST fiber optic tap (the RF-H4000) attached to the backbone coax cable. Model RF-DSRVB-AA TEMPEST DECserver 200, 120 VAC, 60 Hz RF-DSRVB-AB TEMPEST DECserver 200, 240 VAC, 50 Hz	RF-DSRVB-XX
Tape Drive	SFA, Inc. Landover, MD The TGP-802 is a stand-alone 8mm tape drive assembly, using the helican-scan technology. It is powered from a 110V/220V AC source and uses a standard SCSI data interface. The unit has a nominal storage capacity of 2.3 GBytes and a transfer rate of 246kB. The major components are:	TGP-802

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	TGP-802

EXB-8200 Tape Drive (Exabyte Corporation)
Power Supply
Power Line Filter

Options:

	Model No.
Access Keyswitch	802-01
Remote Address Option	802-02

Terminal — Digital Equipment Corporation, Nashua, NH — RF-VT320-XX

The RF-VT320-xx is a monochrome text-only video terminal. The screen measures 14" diagonal and is flat. All electronics for the terminal are housed within the monitor. The RF-LK201-xx keyboard is used. One comm port and one printer are included in the basic model. The terminal is set for 120 or 240 volt operation at the factory by a jumper wire. 50 or 60 Hz power can be used.

Configured Options:

RF-VT320-A2; 120 Volt with attached power cord-no keyboard.
RF-VT320-A3; 240 Volt, no power cord, no keyboard.
RF-VT320-AA; RF-VT320-A2 with RF-LK201-AA, USA keycaps.
RF-VT320-DA; RF-VT320-A2 with RF-LK201-BA, USA/WPS keycaps.
RF-VT320-AB; RF-VT320-A3 with RF-LK201-AA, USA keycaps.
RF-VT320-DB; RF-VT320-A3 with RF-LK201-BA, USA/WPS keycaps.

Terminal — Digital Equipment Corporation, Nashua, NH — RF-VX120-XX

The RF-VX120-xx DECwindow terminal is a monochrome, high resolution, bitmapped X Window System terminal. The terminal may be connected to single or multiple hosts via Digital's TEMPEST ETHERNET. Either fiber optic ETHERNET or the standard 15-pin IEEE 802 connectorization is allowed. Multiple application windows may be used for information, and the terminal conforms to open standards.

Configured Options

Model	Basic Unit with Included Options
	All basic units include VX10A system unit, 2Mb memory, RF-LK201-FA keyboard, and VSXXX mouse.
RF-VX120-AA	TEMPEST DECwindows Terminal, 15-pin ETHERNET

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	RF-VX120-XX

port, 120v

RF-VX120-AB TEMPEST DECwindows Terminal, 15-pin ETHERNET port, 240v

RF-VX120-BA TEMPEST DECwindows Terminal, Fiber optic ETHERNET port, 120v

RF-VX120-BB TEMPEST DECwindows Terminal, Fiber optic ETHERNET port, 240v

Options for RF-VX120-AA and RF-VS120-BA ONLY

RF-VR260-AA Monochrome high resolution monitor, 120v

RF-VR260-A3 Monochrome high resolution monitor, 240v

Options Available for All Models

VX10X-MD 1Mb memory upgrade

Terminal, X-Windows — Hetra Computer & Communications, Sebastian, FL — X-130T

The Model X-130T attaches to the RISC-6000/320T Workstation via Ethernet and Token-Ring LANS and uses X-Window System allowing users to work with graphics applications that run remotely. The X-130T uses a high performance graphics processor to execute display, windowing, keyboard and mouse commands.

The Basic Unit is equipped with:

32MHz TMS34020 Text/Graphic Processor; 12.5MHz I/O Processor.

1MByte Video Memory, Expandable to 2MByte; 2MByte System Memory expandable to 16MByte.

19-inch Color Monitor, Model 4820T.

101-1T Keyboard.

Ethernet High Perforamnce LAN adapter.

Monitors Supported: (Auto Configuration)
640 x 480
1024 x 768
1280 x 1024

Serial and Parallel Ports.

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	X-130T

Options to the X-130T are Listed Below:

Token Ring High Performance Adapter.

Workstation

Apollo Computer, Incorporated — TDN3500
North Billerica, MA

The TDN3500-M6C-19-R-X is a personal workstation equipped with a 32 bit, 25MHz MC68030 microprocessor and a 7-slot IBM PC AT-compatible bus interface. It has a MC68882 floating point coprocessor, 8MB of RAM, and three RS-232 SIO ports. A low profile detachable keyboard with 32 programmable function keys, numeric keypad, and mouse input device is provided. A 19-inch monochrome, 1280 x 1024, 64Hz non-interlaced display is the standard display configuration. The LAN is a fiber optic version of the standard 12MB/sec baseband Apollo token ring network. Mass storage is provided by a 348MB (formatted) HS ESDI Winchester disk. The removable media is a 60MB 1/4-inch cartridge tape drive.

TDN3500-M6C-19-R-8 - Basic Configuration
TDN3000-M6C-19-R-16 - Basic Configuration with Additional 8MB RAM

Option
COM-SCAT (10)-R2-C - X.25 Serial Controller

Workstation

Datawatch Corporation — X86/020
Wilmington, MA

The Datawatch X86/020 is a compact diskless workstation intended for networking applications. With optional proms, the X86/020 can be booted from the network server or remote host. Optional disk emulating EPROMS (up to 2.4MB) can be easily loaded with the X11 X Windows server. Based on an 80386SX processor running at 16 MHz, each standard workstation also includes 8 I/O expansion slots, an enhanced 101-key lockable keyboard, and a 200 watt 110/220 VAC power supply. Maximum on-board memory is 8MB. Display options include VGA color graphics on 14 inch screens and high-resolution 1280 x 1024 color graphics on 16 inch screens. Communications options available include ethernet and industry standard serial and parallel interfaces. A mouse is available.

Basic Unit:
Enhanced 101 key lockable keyboard
8 I/O expansion slots

(Continued) X86/020

Each basic unit must be ordered with one of the following memory options installed:

RM-01	1MB RAM on CPU board
RM-02	2MB RAM on CPU board
RM-03	4MB RAM on CPU board
RM-04	5MB RAM on CPU board
RM-05	8MB RAM on CPU board

Each basic unit must be ordered with one of the following video adaptors installed:

CM-01	VGA Adaptor Board
HM-01A	High-resolution TIGA Interface Adaptor Board (1280 x 1024), 512KB DRAM/1MB VRAM
HM-01B	High-resolution TIGA Interface Adaptor Board (1280 x 1024), 512KB DRAM/2MB VRAM
HM-01C	High-resolution TIGA Interface Adaptor Board (1280 x 1024), 2MB DRAM/1MB VRAM
HM-01D	High-resolution TIGA Interface Adaptor Board (1280 x 1024), 2MB DRAM/2MB VRAM
HM-01E	High-resolution TIGA Interface Adaptor Board (1280 x 1024), 4MB DRAM/1MB VRAM
HM-01F	High-resolution TIGA Interface Adaptor Board (1280 x 1024), 4MB DRAM/2MB VRAM

Additional Options available on all models:

RD-01	1.2MB ROM Disk
RE-01	RAM Expansion Card
CP-01	80387SX Math Coprocessor
SP-01	9 Pin Serial Port (4 Max SP-01 & 02)
SP-02	25 Pin Serial Port (4 Max SP-01 & 02)
PP-01	Parallel Port (2 Max.)
EP-01	WD 8003EB 8 Bit Ethernet (AUI)
EP-02	WD 8003EB 8 Bit Ethernet (RG58)
EP-03	Fiber Optic Ethernet Adaptor
BP-01	Novell Netware Boot Prom for EP-01 and EP-02
BP-02	Novell Netware Boot Prom for EP-03
MS-01	Logitech Bus Mouse
KB-01	US/UK Keyboard Option
KB-02	Belgian Keyboard Ass'y
KB-03	Canadian Keyboard Ass'y
KB-04	Danish Keyboard Ass'y
KB-05	French Keyboard Ass'y
KB-06	German Keyboard Ass'y
KB-07	Italian Keyboard Ass'y
KB-08	Latin American Keyboard Ass'y
KB-09	Netherlands Keyboard Ass'y

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	X86/020
	KB-10	Norwegian Keyboard Ass'y
	KB-11	Portuguese Keyboard Ass'y
	KB-12	Spanish Keyboard Ass'y
	KB-13	Swedish Keyboard Ass'y
	KB-14	Swiss Keyboard Ass'y
	KB-15	United Kingdom Keyboard Ass'y
	VM-14	14" VGA Monitor (For use with CM-01 VGA Adaptor)
	HB-16	16" Hi-Res Monitor (For use with HM-01A..F TIGA Video Adaptor)
Workstation	Datawatch Corporation Wilmington, MA	X86/540X

The DATAWATCH X86/540 is a highly configurable computer workstation based on a 25MHz 80386 processor and incorporating an intelligent bit-master SCSI host adaptor. Each standard workstation also includes 4MB 32 Bit RAM, 65KB SRAM cache memory, a 1.2MB 5.25" floppy disk drive, and an enhanced 101 key lockable keyboard, 8 I/O expansion slots, and a 220 watt 110/220 VAC power supply. The chassis provides 5 half-height media bays which may be optionally configured with a variety of SCSI devices including hard disk drive, cartridge disk drives and streaming tape drives. Maximum on board memory is 20MB with total system memory expandable to 28MB via a 32 bit high speed expansion board.

Configured Options:

Model	Basic Unit with Included Options
DATAWATCH X86/540M	MM-01 Monochrome Adaptor WM14 Monochrome Monitor
DATAWATCH X86/540V	CM-01 VGA Adaptor Board
DATAWATCH X86/540H	HM-01 Hi-Res Adaptor Board

Additional Options Available on All Models:

RM-01	Additional 1MB 32 Bit RAM on CPU board
RM-02	Additional 4MB 32 Bit RAM on CPU board
RM-03	16MB RAM on CPU board in lieu of std 4MB
RM-04	Additional 16MB 32 Bit RAM on CPU board
RE-01	4MB 32 Bit RAM Expansion Board
RE-02	8MB 32 Bit RAM Expansion Board
CP-01	Intel 25MHz 80387 Nuberic Coprocessor
CP-02	Wietek 25MHz 3167 Numeric Coprocessor
DF-01	1.2MB 5.25" Floppy Disk Drive

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	X86/540X
	DF-02	1.4MB 3.5" Floppy Disk Drive
	DS-01	40MB SCSI Hard Disk Drive, 1/2 Ht.
	DS-03	105MB SCSI Hard Disk Drive, 1/2 Ht.
	DS-06	330MB SCSI Hard Disk Drive, Full Ht.
	DS-07	660MB SCSI Hard Disk Drive, Full Ht.
	DC-01	SyQuest 555R 44MB Cartridge Drive
	DT-01	150MB SCSI Streaming Tape
	SP-01	9 Pin Serial Port (4 Max SP-01 & 02)
	SP-02	25 Pin Serial Port (4 Max SP-01 & 02)
	SP-04	Intelligence 4 Port Serial Interface
	SP-08	Intelligent 8 Port Serial Interface
	PP-01	Parallel Port (2 Max.)
	EP-05	WD 8013EBT 8 Bit Ethernet (AUI)
	EP-06	WD 8013EBT 8 Bit Ethernet (RG58)
	MS-01	Logitech Bus Mouse
	ES-01	External SCSI Port
	KB-01	US/UK Keyboard Option
	KB-02	Belgian Keyboard Ass'y
	KB-03	Canadian Keyboard Ass'y
	KB-04	Danish Keyboard Ass'y
	KB-05	French Keyboard Ass'y
	KB-06	German Keyboard Ass'y
	KB-07	Italian Keyboard Ass'y
	KB-08	Latin American Keyboard Ass'y
	KB-09	Netherlands Keyboard Ass'y
	KB-10	Norwegian Keyboard Ass'y
	KB-11	Portuguese Keyboard Ass'y
	KB-12	Spanish Keyboard Ass'y
	KB-13	Swedish Keyboard Ass'y
	KB-14	Swiss Keyboard Ass'y
	KB-15	United Kingdom Keyboard Ass'y
	Additional Options Available on DATAWATCH X86/540V:	
	VM14	14" VGA Monitor
	NM14	14" Multisyncing Monitor
	Additional Options Available on DATAWATCH X86/540H:	
	HM20	20" Hi-Res Monitor
Workstation	Datawatch Corporation Wilmington, MA	X86/550
	The DATAWATCH X86/550 is a highly configurable computer workstation based on a 33MHz 80386 processor and incorporating an intelligent bus-master SCSI host adaptor. Each standard workstation also includes 4MB 32 Bit RAM, 64KB SRAM cache memory, a 1.2MB 5.25" floppy disk drive, and an enhanced 101 key lockable keyboard,	

Equipment Category	Manufacturer City, State Description	Model No.

(Continued) X86/550

8 I/O expansion slots, and a 220watt 110/220VAC power supply. The chasis provides 5 half-height media bays which may be optionally configured with a variety of SCSI devices including hard disk drives, cartridge disk drives and streaming tape drives. Maximum on board memory is 8MB with total system memory expandable to 28MB via a 32 bit high speed expansion board.

Configured Options:

Model	Basic unit w/ Included options
DATAWATCH X86/550M	MM-01 Monochrome Adaptor WM14 Monochrome Monitor
DATAWATCH X86/550V	CM-01 VGA Adaptor Board
DATAWATCH X86/550H	HM-01 Hi-Res Adaptor Board HM-02 Hi-Res TIGA Interface Adaptor Board

Additional Options available on all models:

RM-01	Additional 1MB 32 Bit RAM on CPU board
RM-02	Additional 4MB 32 Bit RAM on CPU board
RM-03	16MB RAM on CPU board in lieu of std 4MB
RM-04	Additional 16MB 32 Bit RAM on CPU board
RE-01	4MB 32 Bit RAM Expansion Board
RE-02	8MB 32 Bit RAM Expansion Board
CP-01	Intel 33MHz 80387 Numeric Coprocessor
CP-02	Weitek 33MHz 3167 Numeric Coprocessor
DF-01	1.2MB 5.25" Floppy Disk Drive
DF-02	1.4MB 3.5" Floppy Disk Drive
DS-01	40MB SCSI Hard Disk Drive, 1/2 Ht.
DS-03	105MB SCSI Hard Disk Drive, 1/2Ht.

Additional Options available on all models:

DS-06	330MB SCSI Hard Disk Drive, Full Ht.
DS-07	660MB SCSI Hard Disk Drive, Full Ht.
DS-08	1GB SCSI Hard Disk Drive, Full Ht.
DC-01	SyQuest 555R 44MB Cartridge Drive
DT-01	150MB SCSI Streaming Tape
SP-01	9 Pin Serial Port (4 Max SP-01 & 02)
SP-02	25 Pin Serial Port (4 Max SP-01 & 02)
SP-04	Intelligent 4 Port Serial Interface
SP-08	Intelligent 8 Port Serial Interface
PP-01	Parallel Port (2 Max.)
EP-05	WD 8013EBT 8 Bit Ethernet (AUI)
EP-06	WD 8013EBT 8 Bit Ethernet (RG58)

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	X86/550
	MS-01	Logitech Bus Mouse
	ES-01	External SCSI Port
	KB-01	US/UK Keyboard Option
	KB-02	Belgian Keyboard Ass'y
	KB-03	Canadian Keyboard Ass'y
	KB-04	Danish Keyboard Ass'y
	KB-05	French Keyboard Ass'y
	KB-06	German Keyboard Ass'y
	KB-07	Italian Keyboard Ass'y
	KB-08	Latin American Keyboard Ass'y
	KB-09	Netherlands Keyboard Ass'y
	KB-10	Norwegian Keybaord Ass'y
	KB-11	Portuguese Keyboard Ass'y
	KB-12	Spanish Keyboard Ass'y
	KB-13	Swedish Keyboard Ass'y
	KB-14	Swiss Keyboard Ass'y
	KB-15	United Kingdom Keyboard Ass'y
	Additional Options available on DATAWATCH X86/550V:	
	VM14	14" VGA Monitor
	NM14	14" Multisyncing Monitor
	Additional Options available on DATAWATCH X86/550H:	
	HM16	16" HiRes Monitor
	HM20	20" HiRes Monitor
Workstation	Hetra Computer & Communications Sebastian, FL	RISC-6000/320T
	The Model RSIC-6000/320T is a High Performance Desktop Workstation which can easily be converted to a floor standing model. The basic unit is equipment with: - 20 MHz power architecture processor with 8K byte instruction cache, 32k byte data cache and 64 bit memory bus. - 8 MByte memory (expandable to 32 MByte). - 4 Micro Channel I/O Slots. - 3.5 Inch 1.44 MByte Floppy Drive. - Three 5.25 inch Drive Bays configured with (1) 120 MByte Removable Disk Drive, (1) 320 MByte SCSI Removable Disk Drive and (1) 150 MByte 1/4 inch Cartridge Tape Drive. - (1) SCSI Controller. - (1) 8-Bit 3D Color Graphics Adapter Model No. 2780. - 101-1T Keyboard. - 19 inch Color Monitor, Model 4820T. - 1003T 3-Button Mouse. - (2) Serial Ports.	

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued) - (1) Parallel Port. - (1) SCSI Port. - Ethernet High Performance Lan Adapter. Options to the RISC-6000/320T are listed below: - IBM Token Ring High Performance Network Adapter Model No. 2970. - Grayscale Graphics Adapter Model No. 2770.	RISC-6000/320T
Workstation	IBM Corporation Gaithersburg, MD The IBM TEMPEST Personal System/2 Model 70-386 workstation is a general purpose computer, equipped with an 80386 CPU, 2MB RAM, one RS-232 asynchronous port, one parallel port, a video controller, mouse, and keyboard interfaces. The System Unit includes a 3.5", 1.44MB Diskette Drive (IBM No. 6450353). A TEMPEST 101-key keyboard (IBM No. 137A640) is included as part of this basic configuration. Three Adapter Card slots are provided for additional feature/options. The workstation operates automatically on World-Wide Power. The IBM TEMPEST PS/2 12" VGA Color Display 4406-T01 (110V), 4406-T02 (220V); and the IBM TEMPEST PS/2 16" VGA Color Display 4409-T01 (110V), 4409-T02 (220V), are available for use with this workstation. 4405 T16E System 1: TEMPEST PS/2 Model 70 with: 16MHz 80386 Processor 60MB Fixed Disk Drive 4405-501 1.44MB Diskette Drive 2MB RAM VGA, Serial, Parallel, Mouse, Ports 101-key Keyboard 3 Available Slots for Options 4405 T16E System 2: TEMPEST PS/2 Model 70 with: 16MHz 80386 Processor TEMPEST PS/2 Portable Disk Drive 4407 T and Adapter	4405

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	4405 PS/2 115MB Portable Disk Drive Module 4407 T01 1.44MB Diskette Drive 2MB RAM VGA, Serial, Parallel, Mouse, Ports 101-key Keyboard 2 Available Slots for Options
		4405 T16E System 3 TEMPEST PS/2 Model 70 with: 16MHz 80386 Processor TEMPEST PS/2 Portable Disk Drive 4407 T and Adapter PS/2 314MB Portable Disk Drive Model 4407 T02 1.44MB Diskette Drive 2MB RAM VGA, Serial, Parallel, Mouse, Ports 101-key Keyboard 2 Available Slots for Options
		4405 T20E System 1 TEMPEST PS/2 Model 70 with: 20MHz 80386 Processor 120MB Fixed Disk Drive 4405-502 1.44MB Diskette Drive 2MB RAM VGA, Serial, Parallel, Mouse, Ports 101-key Keyboard 3 Available Slots for Options
		4405 T20E System 2 TEMPEST PS/2 Model 70 with: 20MHz 80386 Processor TEMPEST PS/2 Portable Disk Drive 4407 T and Adapter PS/2 115MB Portable Disk Drive Module 4407 T01 1.44MB Diskette Drive 2MB RAM VGA, Serial, Parallel, Mouse, Ports 101-key Keyboard 2 Available Slots for Options
		4405 T20E System 3 TEMPEST PS/2 Model 70 with: 20MHz 80386 Processor TEMPEST PS/2 Portable Disk Drive 4407 T and Adapter PS/2 314MB Portable Disk Drive

Equipment Category	Manufacturer City, State Description	Model No.
(Continued)	4405 Module 4407 T02 1.44MB Diskette Drive 2MB RAM VGA, Serial, Parallel, Mouse, Ports 101-key Keyboard 2 Available Slots for Options	
4405 T25E System 1	TEMPEST PS/2 Model 70 with: 25MHz 80386 Processor 120MB Fixed Disk Drive 4405-502 1.44MB Diskette Drive 2MB RAM VGA, Serial, Parallel, Mouse, Ports 101-key Keyboard 3 Available Slots for Options	
4405 T25E System 2	TEMPEST PS/2 Model 70 with: 25MHz 80386 Processor TEMPEST PS/2 Portable Disk Drive 4407 T and Adapter PS/2 115MB Portable Disk Drive Module 4407 T01 1.44MB Diskette Drive 2MB RAM VGA, Serial, Parallel, Mouse, Ports 101-key Keyboard 2 Available Slots for Options	
4405 T25E System 3	TEMPEST PS/2 Model 70 with: 25MHz 80386 Processor TEMPEST PS/2 Portable Disk Drive 4407 T and Adapter PS/2 314MB Portable Disk Drive Module 4407 T02 1.44MB Diskette Drive 2MB RAM VGA, Serial, Parallel, Mouse, Ports 101-key Keyboard 2 Available Slots for Options	
Additional Options:		
4406-T01	TEMPEST PS/2 12" VGA Color Display (110V)	
4406-T02	TEMPEST PS/2 12" VGA Color Display (220V)	
4409-T01	TEMPEST PS/2 16" Color Display (110V)	

Equipment Category	Manufacturer City, State Description	Model No.
	(Continued)	4405
	4409-T02	TEMPEST PS/2 16" Color Display (220V)
	4407-T01	PS/2 115MB Portable Disk Drive Module
	4407-T02	PS/2 314MB Portable Disk Drive Module
	4405-101	2MB Memory Module for T16E or T20E System Board or Memory Expansion Adapter
	4405-106	2MB Memory Module for T25E System Board
	4405-102	85ns Memory Expansion Adapter (2-8MB), 2MB Installed, for T16E, T20E, or T25E
	4405-103	80387 Math Coprocessor for T16E
	4405-104	80387 Math Coprocessor for T20E
	4405-105	80387 Math Coprocessor for T25E
	4405-201	3270 Connection Adapter
	4405-202	Multi-Protocol Adapter
	4405-203	IBM 16/4MB Token Ring LAN Adapter
	4405-204	3COM EtherLINK/MC Ethernet Adapter
	4405-205	Ungerman/Bass Ethernet Adapter
	4405-206	RS-530 Adapter
	4405-207	Y Cable, RS-530 Standard Interface
	4405-209	8514/A Adapter
	4405-301	PS/2 Mouse
	4405-302	System Unit Floorstand

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Section III

Products Containing Confirmed Deficiencies

Equipment Category	Manufacturer City, State Description	Model Number
Scanner	Candes Systems Incorporated Harleysville, PA The 895T-XX is a TEMPEST version of the Apple A9M0337 Desk-top, Digital black and white scanner using a Charged Coupled Device (CCD) scanning device, accepting documents to a maximum size of 8.5" x 14" and operating at scan times of 5ms, 8ms, and 16ms in the black and white mode, half-tone mode, and mixed mode respectively.	895T-XX

Configured Options:

Model No.	Basic Unit/ Included Options
895T-01	CA-01 36" TEMPEST peripheral SCSI Cable (25 pin D) TE-01 TEMPEST SCSI Terminator
895T-02	CA-06 36" TEMPEST Peripheral SCSI Cable (37 pin D) TE-01 TEMPEST SCSI Terminator

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January 1992 Endorsed TEMPEST Products List

Section IV

Products With Suspended Endorsement Pending
Product Endorsement Termination and Appeal

Equipment Category	Manufacturer City, State Description	Model Number

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Section V

Products Whose Endorsement Has Been Terminated Because of Unresolved Deficiencies or Failure to Comply with ETPP Procedures

Equipment Category	Manufacturer City, State Description	Model Number

Terminal/Workstation

Tektronix, Incorporated — 4230T/4330T
Beaverton, OR

The 4230T/4330T is a high performance color 3D graphics terminal and workstation family of products. These 4230T/4330T products have a high brightness (mesh-less) 19" monitor with 1280 x 1024 resolution. Graphics, communication and computing options expand the family capability. The 4230T terminal supports PLOT-10 graphics, has 4 bit planes standard and provides 16 colors from a palette of over 16 million. It has over 2MB standard graphics memory available to the user. The 4330T Graphics Workstation adds computer capability to the 4230T family. It supports Utek (Tektronix BSD-based UNIX), NFS, X windows, PC-XT emulation, with 4MB RAM standard. It has a standard 156MB hard disk and 1.2MB flexible disk. The 4330T has SCSI ports (for removable or additional mass storage). The 4230T/4330T have RS232C and Centronix ports and VT220 compatible keyboard. Through TEMPEST technology breakthroughs, the products have no wire mesh on the monitor and the cabinetry closely matches the commercial counterparts.

Model	Basic Unit w/ Included Options	Part Number
4230T	Color Monitor 1024x1280	119-2451
	Keyboard VT200	119-2468
	Graphics Control Processor PWB w/ 2MB RAM	670-9613
	Picture Processor PWB	670-9608
	Frame Buffer PWB w/ 4 Bit Planes	670-9611
	One Chassis	670-9606
4330T	Color Monitor 1024x1280	119-2451
	Keyboard VT200	119-2468
	Graphics Control Processor PWB w/ 2MB RAM	670-9613
	Picture Processor PWB	670-9608
	Frame Buffer PWB w/ 4 Bit Planes	670-9611
	Two Chassis	670-9606
	Compute Engine PWB w/ 4MB	671-0074

RED PAGES

RED PAGES

Equipment Category	Manufacturer City, State Description	Model Number
(Continued)	4230T/4330T	
	RAM	
	Mouse	119-1808
	156MB Hard Disk Drive	119-2437
	1.2MB Flexible Disk Drive w/ SW	119-2400
	Graphics Display S/W Flexible Disk	650-2013
	Both 4230T and 4330T Models Available in Configurations:	
	35 Basic Unit w/ Additional 4 Bit Planes (for a total of 8 bit planes)	670-9610
	36 Basic Unit w/ Additional 4 Bit Planes (for a total of 8 bit planes) and Add Z-Buffer	670-0610 670-9614
	37 Basic Unit w/ Additional 8 Bit Planes (for a total of 12 bit planes) and Add Z-Buffer	670-9609 670-9614 670-9615 671-0286
	38 Basic Unit w/ Additional 4 Bit Planes (for a total of 8 bit planes), Double Buffered, and Add Z-Buffer	670-9610 670-9614 671-0154 671-0286
	39 Basic Unit w/ Additional 8 Bit Planes (for a total of 12 bit planes), Double Buffered, or 24 True Color, and Add Z-Buffer	(2) 670-9609 670-9614 670-9615 671-0286
	Additional Options Available on Any 4230T Configured Model:	
	10 Interactive DMA PWB w/ MicroVax Connection	670-9617 670-9710 670-9762 650-2053
	14 Interactive DMA PWB w/ 4301 Connection	670-9617 670-9762 671-0223 671-0312
	TM Mouse	119-1808
	Additional Options Available on any 4330T Configured Model:	
	1A Floating Point Accelerator	671-0224
	1C Add 8MB Memory	671-0222
	12 Streamer Tape	062-9234 119-2460
	13 Removable Hard Disk	710-5103

Equipment Category	Manufacturer City, State Description	Model Number	
	(Continued)	4230T/4330T	
	17	300MB Hard Disk	119-3123
	3A	Dual RS232 DMA	671-0310
	3F	Interactive DMA	671-0312
	3G	Local Bus Adapt	671-0223
	T1*	External Mass Storage Unit	062-9320
		w/ 156MB Disk	119-2437
	T2*	External Mass Storage Unit	062-9320
		w/ 300 MB Disk	119-3123
	T3*	External Mass Storage Unit	062-9320
		w/ two 300MB Disks (for a total of 600MB)	(2)119-3123
	T4	Removable External Mass Storage Unit (applies to T1, T2, T3)	367-0389

* Only one of these options is orderable with the 4330T.

Additional Options Available on both 4230T and 4330T Configured Models:

20	Additional 16MB Display List Memory	670-9612
41	Additional Chassis	670-9606
TD	Valuator Dials	119-2483 670-9616
TF	Fiber Optic LAN	119-3463
E1-E-9, SO	Service, Software Subscription, Installation	N/A

TERMINATED: 04/01/91

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Equipment Category	Manufacturer City, State Description	Model Number
Printer, Laser	Hewlett-Packard Company Palo Alto, CA The 33449A-T/B-T LaserJet Series III is a general purpose laser printer for personal computer and workstation hardcopy output. Each printer includes 1MB RAM, Centronics parallel and RS-232-C/RS-422-A Serial interfaces, letter size paper input tray and appropriate power cord. The standard printer features a print speed of up to 8 pages per minute and a 300 dots-per-inch text and graphics resolution. 33449A-T TEMPEST LaserJet III, 60 Hz/120 VAC 33449B-T TEMPEST LaserJet III, 50 Hz/240 VAC The following accessories are available to enhance the printer's functionality though expanded memory and font capabilities. 1 or 2MB memory boards can be installed in the available two menory slots, for up to a total of 5MB RAM. Printer will not operate without two font cartridges. Font Cartridges: (Must order two) C2335A-T — Font, Operational (Dummy Font for operation only) C2335A-T #C01 — Font, Word Perfect C2335A-T #C02 — Font, Microsoft C2335A-T #C03 — Font, Polished Worksheets C2335A-T #C04 — Font, Persuasive Presentations C2335A-T #C05 — Font, Forms Etc. C2335A-T #C06 — Font, Bar Codes & More C2335A-T #C07 — Font, Text Equations C2335A-T #C08 — Font, Global Text 92286PC-T — Font, Pro Collection C2055A-T #C01 — Font, Great Start Memory: 33474B — 1MB Memory Add-on 33475B — 2MB Memory Add-on Interface Cables:	33449X-T

GREEN PAGES

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued)	33449X-T
	C2327Z-T	Special Centronics parallel cable, 2.0 meter. (25 pin to 25 pin)
	46201TA-T	Special RS-232 serial cable, 4.5 meter. (9 pin to 25 pin, sub-D male DTE)
	DROPPED DATE: 04/01/91	
Workstation	Hewlett-Packard Company Palo Alto, CA	98588G-T

The 98588G-T is a TEMPEST HP 9000 Model 370 engineering Workstation. Each TEMPEST workstation includes a shielded cabinet (A1500A-T), HP-UX License-to-Use (98594L) and an HP 9000 Model 370 SPU (98579B) equipped with a 33 MHz 68030 processor, 33 MHz 68882 Floating Point Coprocessor, 8MB parity-checking RAM, 4Gb virtual memory address space, 32-bit system bus, 32-bit DIO bus, and system interface board (with IEEE-4888 HP-IB interface, RS-232 serial interface, IEEE 802.3/Ethernet LAN interface, IEEE-488 high-speed HP-IB disk interface, two-channel DMA controller and HP-HIL interface). For a minimum system configuration, option 001, 2D Color Graphics Subsystem must be ordered. The appropriate localization option must also be ordered to determine 120 or 240VAC power (Refer to HP TEMPEST 98588G-T Workstation Configuration Guide).

98588G-T TEMPEST HP 9000 Model 370 Workstation

A1500A-T	Cabinet
98579B	Model 370 SPU
98594L	HP-UX License to Use

Option 001 2D Color Graphics Subsystem

A1509A-T	HP-HIL Module
98550A	High Resolution Color Graphics Board with RGB Cable
98754A-T	19" High Resolution Color Monitor with RGB Connector
A1510A-T	HP-HIL 3-button Mouse
46021A-T	Keyboard
46084A	HP-HIL ID Module

Options 100 through 303 are available to configure the 98588G-T beyond the minimum system described above. (Refer to HP TEMPEST 98588G-T Workstation Configuration Guide).

Option 100 Add DIO-II Expander (98570A)
Option 101 Add Floating Point Accelerator (98248B with Option 004)

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) Option 102 Converts 8MB RAM to 16MB RAM (98579B Option 116) Option 103 Substitute 8MB ECC RAM for 8MB parity RAM (98579B Option 208) Option 104 Substitute 16MB ECC RAM for 8MB Parity RAM (98579B Option 216) Option 105 Add 8MB ECC RAM (98264A with Option 004) Option 106 Add 16MB ECC RAM (98264B with Option 004) Option 107 Add 4MB parity RAM Controller (98258A with Option 004) Option 108 Add 4MB parity RAM add-on, plugs into 98258A (98258B) Option 109 Add 12MB parity RAM add-on, plugs into 98258A (98258C) Option 110 Add 3-slot Bus Connector (98562-66503) Option 111 Add 4-slot Bus Connector (98562-66504) Option 112 Add 4-channel asynchronous Multiplexer (98642A) Option 200 Add 152MB Fixed Disk Drive (7962B) Option 201 Add 304MB Fixed Disk Drive (7963B) Option 203 Add Additional 152MB Fixed Mechanism for 7962/63B with Controller (97962B) Option 204 Add Additional 304MB Fixed Mechanism for 7962/63B with Controller (97963B) Option 205 Add 152MB Removable Disk Drive (9262B) Option 206 Add 304MB Removable Disk Drive (9263B) Option 207 Add Addtional 152MB Removable Mechanism for 9262/63B with Controller (97902B) Option 208 Add Additional 152MB Removable Mechanism for 9262/63B without Controller (97902B Option D03) Option 209 Add Additional 304MB Removable Mechanism for 9262/63B with Controller (97903B) Option 210 Add Additional 304MB Removable Mechanism for 9262/63B without Controller (97903B Option D03) Option 212 Add Internal Cartridge Tape Drive (9144A) Option 302 Add 2-Channel Wire RS-232 Module (A1505A-T) Option 303 Add Fiber Optic IEEE 802.3 Lan Module (A1507A-T) **DROPPED DATE: 04/01/91**	98588G-T
Workstation	Martin Marietta Corporation Denver, CO The AN/TYQ-37 is a portable, general purpose graphics computer workstation which has been ruggedized for use in harsh military environments. The workstation has been qualified to many MIL-STD-810D environments and MIL-STD-461B, Part 4. Each workstation is equipped with a basic processor unit (850EA072000) which	AN/TYQ-37

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued) contains a Microvax II CPU, 16MB of RAM, one or more Winchester technology removable hard disks, two high resolution video graphics engines, 16 serial I/O ports, and a dual redundant dual ring fiber optic LAN transceiver which runs at 40MB per second. Each workstation is equipped with a mouse, keyboard, printer, and two high resolution color graphics monitors. The color monitors (850EA076000) are equipped with a thin film shield which does not degrade resolution. The workstation may be configured with one to three 380MB or 760MB Winchester technology, removable disk drives.	AN/TYQ-37
	Model No. — Basic Unit with Included Options AN/TYQ-37(V1) — Single 380MB Disk AN/TYQ-37(V2) — Dual 380MB Disks AN/TYQ-37(V3) — One 380MB Disk and one 760MB Disk **DROPPED DATE: 07/01/91**	
Workstation	Sun Microsystems Federal, Inc. Fremont, CA The Sun 3/260T-E is a family of high-performance, general purpose deskside computer workstations or file servers designed for broad application in such diverse areas as computer aided engineering, application and program development, publishing applications, etc. The Sun 3/260T-E achieves 4 MIPS performance in an open system architecture which takes full advantage of industry standards and networks. The Sun 3/260T-E consists of a twelve slot VME card cage embedded in a High-Utility, Low-Cost Cabinet (HULCC) which meets all requirements of NACSIM 5100A. Each workstation is equipped with a Sun CPU Board which includes a 25 MHz 68020 CPU, a 20 MHz 68881 floating-point coprocessor, a 64kB cache, an 8MB main memory, an Ethernet controller, and two RS-423 ports. The 3/260T-E may also be configured with up to two removable 327MB ESDI hard disk drives, up to two 280MB SMD hard disk drives in a separate HULCC expansion cabinet, 1.2MB flexible disk drive, 60MB tape, and up to 32MB of total ECC memory. The workstations and file servers operate under the Sun OS converged UNIX operating system and support multiple programming languages and communications protocols. Model Nos. 3/260ST-E The basic configuration consisting of a	3/260 T-E

Equipment Category	Manufacturer City, State Description	Model Number
	(Continued)	3/260 T-E Sun CPU board, a 25 MHz 68020 CPU, a 20 MHz 68881 floating-point coprocessor, a 64kB cache, an 8MB main memory, an Ethernet controller, and two RS-423 ports. This configuration must be procured with the T-455E Fibercom Fiber Optic Ethernet Interface Board.
		3/260CT-E The basic configuration plus a keyboard, a mouse, and an 1152 x 900 color monitor. This configuration must also be procured with the T-455E Fibercom Fiber Optic Ethernet Interface Board.
		Additional Options Available on All Models:
		T-108E 8MB ECC Memory Expansion Board (Max. of 3) T-212E GP2 (Enhanced Graphics Processor) Board T-455E Fibercom Fiber Optic Ethernet Interface Board TR-506E Removable 327MB (formatted) ESDI Hard Disk Drive TR-510E Removable Dual 327MB (formatted) ESDI Hard Disk Drives TR-510E/2 Individually Removable 327MB Drives TR-516E Removable 327MB Hard Disk and Fixed 60MB 1/4" Tape Drive with Controllers TR-517E Removable Dual 327MB Hard Disk and Fixed 60MB 1/4" Tape Drive with Controllers T-650E 60MB 1/4" Cartridge Tape Drive with Controller OE-15M 15 Meter Fiber Optic Cable OC-50M 50 Meter Fiber Optic Cable OE-100M 100 Meter Fiber Optic Cable **DROPPED DATE: 04/01/91**
Workstation	Sun Microsystems Federal, Inc. Fremont, CA	4/260 T-E The Sun 4/260T-E is a family of high-performance, supercomputing deskside workstations or file servers designed for broad application in such diverse areas as computer aided engineering, application and program development, publishing applications, etc. The Sun 4/260T-E achieves 10 MIPS performance in an open system architecture which takes full advantage of industry standards and networks. The Sun 4/260T-E consists of a twelve slot VME card cage embedded in a High-Utility, Low-Cost Cabinet (HULCC) which meets all requirements of NACSIM 5100A. Each workstation is equipped with a Sun CPU board which includes an Ethernet controller, a

Equipment Category	Manufacturer City, State Description	Model Number
(Continued)		4/260 T-E

video controller, and two RS-423 ports. The 4/260T-E may also be configured with up to two removable 327MB ESDI hard disk drives, up to two 280MB SMD hard disk drives in a separate HULCC expansion cabinet, 1.2MB flexible disk drive, 60MB tape, and up to 128MB of total ECC memory. The workstation and file server operate under the Sun OS converged UNIX operating system and supports multiple programming languages and communications protocols.

Model Nos.

4/260ST-E	The basic configuration consisting of a Sun CPU board, an Ethernet controller, a video controller, and two RS-423 ports. This configuration must be procured with a T-455E Fibercom Fiber Optic Ethernet Interface Board.
4/260CT-E	The basic configuration plus a keyboard, a mouse, and an 1152 x 900 color monitor. This configuration must also be procured with a T-455E Fibercom Fiber Optic Ethernet Interface Board.

Additional Options Available on All Models:

T108-E	8MB ECC Memory Expansion Board (maximum of 3)
T-212E	GP2 (Enhanced Graphics Processor) Board
T-455E	Fibercom Fiber Optic Ethernet Interface Board
TR-506E	Removable 327MB (formatted) ESDI Hard Disk Drive
TR-510E	Removable Dual 327MB (formatted) ESDI Hard Disk Drives
TR-510E/2	Individually Removable 327MB Drives
TR-516E	Removable 327MB Hard Disk and Fixed 60MB 1/4" Tape Drive with Controllers
TR-517E	Removable Dual 327MB Hard Disk and Fixed 60MB 1/4" Tape Drive with Controllers
T-650E	60MB 1/4" Cartridge Tape Drive with Controller
OE-15M	15 Meter Fiber Optic Cable
OE-50M	50 Meter Fiber Optic Cable
OE-100M	100 Meter Fiber Optic Cable

DROPPED DATE: 04/01/91

INTRODUCTION TO THE ENDORSED TEMPEST TEST SERVICES LIST

The National Security Agency (NSA) Endorsed TEMPEST Test Services List (ETTSL) is a list of commercial TEMPEST test services facilities which NSA has endorsed under the auspices of the NSA Endorsed TEMPEST Test Services Program (ETTSP), for use by U.S. Government departments and agencies, U.S. Government contractors, and eligible U.S. TEMPEST product manufacturers to conduct TEMPEST testing related to the development and production of TEMPEST products. NSA endorsement of a TEMPEST test services facility is a statement that the facility complies with the technical, security, personnel, equipment, and operational requirements specified in the ETTSP Technical and Security Requirements Document (TSRD).

NSA endorsement and placement of a facility on the ETTSL occurs when the Company demonstrates it operates test services facilities with the requisite personnel, test equipment inventory, calibration and maintenance requirements delineated in the TSRD.

NSA does not make, by virtue of its endorsement, any warranty or representation regarding the quality of services provided by the endorsed facility.

The ETTSP is an adjunct to the U.S. Government TEMPEST Certification Program (TCP) which is responsible for the certification of TEMPEST professionals.

Companies desiring information concerning the process and requirements for obtaining NSA endorsement of a TEMPEST test services facility under the auspices of the ETTSP should contact:

Director, NSA
National Security Agency
ATTN: X512/TEMPEST
Fort George G. Meade, MD 20755-6000

SCHEDULE OF SUBMISSIONS FOR ETTSL LISTING

The ETTSL is updated four times yearly (January, April, July, and October). Only the current issue should be used. In order to coordinate all the chapters in the Information Systems Security Products and Services Catalogue (ISSPSC) with the various organizations who publish them, and in order for the timely printing and subscription distribution from the Government Printing Office of the ISSPSC, the Office of

Acquisition Support and Business Development requests that all Chapters of the ISSPSC be delivered one month prior to the quarterly printing month. As a result, all documentation for the next quarterly printing of the ETTSL must be delivered to the Endorsed TEMPEST Test Services Program Management Office (PMO) two months prior to the quarterly publication month. The following is the schedule of submissions for the ETTSL:

ETTSP COMPANIES MUST HAVE DOCUMENTATION TO PMO BY:	PMO MUST DELIVER FINAL ETTSL FOR ISSPSC BY:	CATALOGUE PUBLISHING MONTH:
1 November	1 December	January
1 February	1 March	April
1 May	1 June	July
1 August	1 September	October

OUTLINE OF SECTIONS

The ETTSL consists of three sections:

a. White Pages (Section I): An alphabetical listing, delineating the names, addresses, phone numbers, and company point of contact (POC) of each endorsed TEMPEST test services facility.

b. Blue Pages (Section II): A list of test services facilities with suspended endorsement, pending facility endorsement termination and appeal. Upon endorsement suspension, the company operating the facility may not advertise its services as NSA endorsed, take any new orders for TEMPEST test services, or perform TEMPEST test services pursuant to the ETTSP authorization. The facility remains in Section II pending facility endorsement termination and appeal.

c. Red Pages (Section III): A list of facilities whose endorsement has been terminated because of failure to comply with ETTSP procedures and requirements. Once listed in this section the facility shall remain here for one year, after which it will be deleted from the ETTSL.

JANUARY 1992 ETTSL ANNOUNCEMENTS

a. The Electronic Bulletin Board System (EBBS) formerly used by the TEMPEST Endorsement Program Office for communications between this office and vendors has been discontinued. Any future communications will be conducted in writing or by telephone. Consult the address listed above in Paragraph 5.

b. TEMPEST Technologies, Inc. Test Service has been voluntarily terminated by the company.

January 1992 Endorsed TEMPEST Test Services List

Section I

Advanced Measurement Systems Div.
ATTN: Antonio Cardenas
703-641-1533
8550 Arlington Blvd.
Fairfax, VA 22031

Alliant Techsystems, Inc.
ATTN: James H. Hall
301-266-1785
P. O. Box 391
Annapolis, MD 21404

Alliant Techsystems, Inc.
ATTN: Richard H. Newcomb
201-542-1400
P. O. Box 54
Eatontown, NJ 07724

Alliant Techsystems, Inc.
ATTN: Michael R. McHale
512-647-8231
P. O. Box 380808
San Antonio, TX 78280

ARC Professional Services Group, Inc.
ATTN: Richard Neuens
703-642-4292
5390 Cherokee Avenue
Alexandria, VA 22312

ARC Professional Services Group, Inc.
ATTN: James O. Dickinson, Jr.
408-737-2566
1231 Midas Way
Sunnyvale, CA 94086

Chomerics, Incorporated
ATTN: Anthony Genova
617-935-4850 363
P. O. Box 2436
Woburn, MA 01888

Comsearch Applied Technology, Inc.
A Subsidiary of Secure Systems Grp.
ATTN: Robert K. Lyons
703-620-6300
11720 Sunrise Valley Drive
Reston, VA 22091

Cryptek Secure Communications, Inc.
Div of General Kinetics, Inc.
ATTN: Neel J. Price
703-478-7140
P. O. Box 365
Herndon, VA 22070

Dataproducts New England, Inc.
ATTN: Marilyn Marek
203-265-7151 224
P. O. Box 30
Wallingford, CT 06492

Datasec Corporation
ATTN: Judy Figlioli
603-954-9700
P. O. Box 790
Wilton, NH 03086

Datawatch Corporation
ATTN: Alan MacDougall
617-932-0550
P. O. Box 847
Wilmington, MA 01887

Dayton T. Brown, Inc.
ATTN: Frank Erhman
516-589-6300 363
555 Church Street
Bohemia, NY 11716

Delta Data Systems Corp.
ATTN: Robert Mellott
301-290-6400 234
7175 Columbia Gateway Drive
Columbia, MD 21046

Digital Equipment Corporation
ATTN: Mario Martinello
603-884-4375
Mail Stop MK02-1/K6
Digital Way, P.O. Box 9501
Merrimack, NH 03054-0430

Digital Equipment Corporation
Attn: Bruce Archambeault
603-884-4759
P. O. Box 1534
Salem, NH 03079

Hetra Computer & Communications
Industries, Inc.
ATTN: Dan Wonak
407-589-7331 214
P. O. Box 9000
Sebastian, FL 32958

Hughes Aircraft Company
Ground Systems Group
Attn: Charles K. Jackson
714-732-7005
P. O. Box 3310
Fullerton, CA 92634

International Technology Corp.
ATTN: David J. Bloch
703-749-1200
P. O. Box 6250
McLean, VA 22106-6250

Iverson Computer Services, Inc.
ATTN: Ivan Feo
813-535-8856
4825 140th Avenue North
Suite K Sunplex Center
Clearwater, FL 34622

LORAL Western Development Labs
Strategic Systems Operation
ATTN: Donald Blair
301-796-1747
7170 Standard Drive, Mailstop 3E
Hanover, MD 21076

Mitek Systems, Inc.
ATTN: Glenn Ritzmann
619-587-9157
P. O. Box 261004
6225 Nancy Ridge Drive
San Diego, CA 92121

Mitek Systems, Inc.
Eastern Operations
ATTN: Karl Sanders
703-318-7030
P. O. Box 28
Sterling, VA 22170

Motorola, Inc.
Government Electronics Grp. Str.
ATTN: Dwayne Awerkamp
602-441-3138
2501 South Price Road
Chandler, AZ 85248

North Atlantic Industries, Inc.
ATTN: Arthur Freilich
516-582-6500 251
60 Plant Avenue
Hauppauge, NY 11788-3890

Radiation Sciences, Inc.
ATTN: Chester B. Kosiorek
215-256-4133
3131 Detweiler Road
Harleysville, PA 19428

Rubicom Systems, Inc.
ATTN: Joseph G. Barbee
407-951-1710
P. O. Box 22780
Melbourne, FL 32902-2780

Science Applications Intl. Corp.
ATTN: James Owen
619-259-4944
11696 Sorrento Valley Road
San Diego, CA 92121

Security Comms. of America, Inc.
ATTN: Alice Gould
203-269-1883
P. O. Box 4245
Yalesville Station
Wallingford, CT 06492

SFA, Inc.
ATTN: P. J. Mondin
301-925-9400
1401 McCormick Drive
Landover, MD 20785-5396

Southwest Research Institute
ATTN: William H. McGinnis
512-522-2721
P.O. Box 28255
San Antonio, TX 78228-0255

Teledyne Lewisburg
ATTN: Theodore W. Dugan, Jr.
615-359-4531 1287
P. O. Box 326
Lewisburg, TN 37091

TRW/Space and Technology Group
ATTN: Ruben Bergay
310-813-5164
MS M2/2164
One Space Park
Redondo Beach, CA 90278

Unisys Corporation
Federal Information Systems
ATTN: E. Harry Carlson
801-594-6197
P. O. Box 16225
Salt Lake City, UT 84116-0225

Wang Laboratories, Inc.
ATTN: Don Gangemi
508-967-4093
M/S 013-A2A
One Industrial Avenue
Lowell, MA 01851

Zenith/Inteq, Inc.
ATTN: Steven G. Ferguson
703-471-1500
13860 Redskin Drive
Herndon, VA 22071

January 1992 Endorsed TEMPEST Test Services List

Section II

Test Services Facilities with Suspended Endorsement
Pending Facility Endorsement Termination and Appeal

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January 1992 Endorsed TEMPEST Test Services List

Section III

Test Services Facilities Whose Endorsement Has Been Terminated
Because of Failure to Comply with ETTSP Procedures and Requirements

RED PAGES

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Rev. Date - 12/3/91

Index for the Degausser Products List

NATIONAL SECURITY AGENCY

DEGAUSSER PRODUCTS LIST

As of 1 December 1991

1. INTRODUCTION

The Degausser Products List (DPL) lists the model identification of equipment units that were evaluated against and found to satisfy the requirements for erasure of magnetic media that hold classified data. A commercial production unit of each model of degausser was evaluated against Department of Defense (DOD) requirements for erasure of classified tapes as set forth in DoD Manual 5200.28-M, "Automated Data Processing Security", revised June 1979, (now under revision). The National Security Agency/Central Security Services (NSA/CSS) has implemented the Manual's specification in NSA/CSS Specification L14-4-A, dated 31 October 1987. Listing of a product on the DPL does not constitute endorsement of the product by the Government or NSA, it merely indicates that the unit evaluated has met all applicable degausser requirements. Moreover, though listed in the DPL, products must be periodically tested to ensure continued compliance with the specification. NSA/CSS Specification L14-4-A, Section 5, Degaussing Level Performance Test Procedures, gives a test procedure to verify continued compliance with the specification.

Magnetic media are divided into types. Type I products are used to degauss magnetic media whose coercivity is no greater than 350 Oersteds (Oe). Type II products are used to degauss magnetic media whose coercivity is no greater than 750 Oe. Coercivity of a magnetic media defines the magnetic field necessary to reduce a magnetically-saturated material's magnetization to zero. The correct use of degaussing products will ensure that classified data is no longer retrievable. **NOTE: IN ADDITION TO DEGAUSSING, CERTAIN ADMINISTRATIVE PROCEDURES MAY BE REQUIRED BEFORE DEGAUSSED MAGNETIC MEDIA MAY BE DECLASSIFIED. CONSULT YOUR SECURITY OFFICER OR MANAGER FOR GUIDANCE IN THIS REGARD.**

Recent studies have shown that Type I and II labels should no longer be associated with discussions involving the degaussing of floppy disks and hard disk magnetic media. Also note that degaussers are ineffective in erasing magneto-optic recording media.

Correct use of these equipments is necessary to ensure inadvertent disclosure of classified information does not occur. Accordingly, users having operational questions about the equipment should direct their questions to the manufacturer. Questions regarding security requirements should be addressed to your Security Officer or manager.

Companies wishing to submit a product to the evaluation process should contact:

National Security Agency
ATTN: L14 Degausser Evaluation Program
9800 Savage Road
Ft. George G. Meade, MD 20755-6000

2. DEGAUSSER EQUIPMENT

2.1 Type I Degaussers - These degaussers have satisfied the requirements to degauss magnetic tape having a maximum coercivity of 350 Oersteds (Oe). See the applicable notes at the end of section 2. NOTE: Adapters may be necessary for degaussing floppy diskettes and hard disk platters, or when media dimensions are smaller than the maximum size the degausser can accommodate.

2.1.1 Manual Loading Degaussers

2.1.1.1 Single Reel Degaussers

MANUFACTURER	MODEL NUMBER
Ampex Corporation	SE20 (2)
Bell & Howell Company	TD-2903-4B (1)
Consolidated Electrodynamics	TD-2903-4A (2)
CMC Technology Corporation 2650 Lafayette St. Santa Clara, CA 95050-2604 (408)980-9800 (212)486-1966 ATTN: Ms. Tami Reyes	TD-800
Computer Link Corporation	515 (2)
Computer Link Corporation	520 (2)
Computer Link Corporation	530 (4)
Computer Link Corporation	538 (4)
Computer Link Corporation	540 (4)
Data Devices International 20235 Bahama St. Chatsworth, CA 91311 (818)998-2900 ATTN: Ms. Mary Rose	Cambrian

MANUFACTURER	MODEL NUMBER
Datatape Incorporated 360 Sierra Madre Villa Pasadena, CA 91109-7014 (818)796-9381 ATTN: Order Administration	TD-500
Data Tape Incorporated	TD-29J3-4B
General Kinetics Incorporated 12300 Parklawn Dr. Rockville, MD 20852 (301)881-2044 ATTN: Mr. Shirl Lakeway	K90
General Kinetics Incorporated	K80 (2,3)
Hewlett Packard Company	3603 A (2)
Integra Technologies Corporation 132 Calvary St. Waltham, MA 02254-9185 (800)221-5923 ATTN: Sales Department	D530
Integra Technologies Corporation	D538
Integra Technologies Corporation	D540
KYBE Corporation	1100 (2)

2.1.1.2 Multiple Reel Degaussers

IXI, Incorporated	5661C (5)
Rimage Corporation 6210 Bury Drive Eden Prairie, MN 55346 (800)445-8288 ATTN: Ms. Arleen S. Hedge	5661C

2.1.2 Continuous Loading Degaussers - These are continuous loading (conveyor belt) degaussers.

MANUFACTURER	MODEL NUMBER
Electro-Matic Products Co. 2235 N. Knox Ave. Chicago, IL 60639 (312)235-4010	2PTFB15-17
Electro-Matic Products Co.	2PTFB15-18
Electro-Matic Products Co.	2PTFB15-113
Garner Industries 4200 N. 48th St. Lincoln, NE 68504 (402)464-5911	2700

2.2 Type II Degaussers - These degaussers have satisfied the requirements to degauss magnetic tape having a maximum coercivity of 750 Oe. See the applicable notes at the end of section 2. NOTE: Adapters may be necessary when media dimensions are smaller than the maximum size the degausser can accommodate.

2.2.1 Manual Loading (Single Reel) Degaussers

Ampex Corporation 600 Wooten Rd. Colorado Springs, C0 80915 (800)227-8402 ATTN: Mr. Larry Roberts	SE 750
Computer Link Corporation	550 (2)
Data Security, Inc. 2801 N. 27th St. Lincoln, NE 68521 (402)464-5858 (800)225-7554 ATTN: Mr. Brian Boles	Type II, 900-0001
Data Security, Inc.	Type II, 902-0001
Integra Technologies Corporation	D538-II

2.2.2 Continuous Loading Degaussers - These are continuous loading (conveyor belt) degaussers. NOTE: At the time of issue of this document, no manufacturers have satisfied the requirements to supply this product.

Notes:

1. This model is now being manufactured by Data Tape Inc.

2. Production of this model has been discontinued. Existing models under this note are still acceptable for use.

3. When using this model for tape reels wider than 1/2 inch, the tape must be turned over and degaussed a second time.

4. This model is now being manufactured by Integra Technologies Corporation.

5. This model is now being manufactured by Rimage Corporation.

3. PERMANENT MAGNET DEGAUSSERS

3.1 Hand-held Degaussers - These are hand-held permanent magnets that have satisfied the requirements to degauss floppy disks, disk packs, disk platters, magnetic drum surfaces, bubble memory chips and thin film memory modules. See the applicable notes at the end of section 3.

To degauss disk packs, cover the hand-held magnet with a lintless tissue, wiping cloth, or layer of thin plastic as a means of preventing damage to the recording surface. Insert the degaussing wand into the disk pack so that the active magnetic portion completely covers the recording surface of the disk from hub to perimeter. Wipe each active disk surface (top and bottom) at least three times with the magnet.

MANUFACTURER	MODEL NUMBER
Applied Magnetics Lab. 1404 Bare Hills Rd. Baltimore, MD 21209 (301)583-2100 ATTN: Ms. Linda Nolan	42-P-MEM
Applied Magnetics Lab.	4744H
Applied Magnetics Lab.	AML-6KG

MANUFACTURER	MODEL NUMBER
Computer Link Corp.	600-F4 (1)
Computer Link Corp.	600-F5 (1)
Constant Data Control Corp.	42-P-MEM (1)
Integra Technologies Corp.	I600-F4
Precision Methods	1500 (1)
Precision Methods	2000 (1)
Recoma, Inc. 400 Myrtle Ave. Boonton, NJ 07005 (201)335-2533 ATTN: Mr. Rich Vester or Mr. Terry Loughery	4KG

3.2 Floppy Disk Degaussers - These are enclosed permanent magnets that have satisfied the requirements to degauss floppy disk media (8 inch, 5 1/4 inch, and smaller). To properly degauss floppy disks, pass the disk through the entry slot, turn the disk 90 degrees and slide the disk through the slot again.

Applied Magnetics Lab.	Data Muncher
J.C. Nickels, Inc.	Model 1084 Bit Scrubber (2)
Proton Engineering, Inc. 3251 SW Buena Vista Blvd. Palm City, FL 34990 (407)597-4298 ATTN: Mr. William Olliges	Model 1084
Proton Engineering, Inc.	Model 1090

Notes:

1. Production of this model has been discontinued. Existing models under this note are still acceptable for use.

2. This model is now being manufactured by Proton Engineering, Inc.

4. Special Purpose Degaussers - These are special purpose, large cavity electro-magnet degaussers that have satisfied the requirements to degauss the following types of magnetic recording media: floppy disks, disks packs, sealed disk packs, hard disks, Winchester disk drives, and disk platters. All steel shielding materials, (i.e., casings, cabinets, and mounting brackets) which may interfere with the degausser's magnetic field must be removed from the disk drive before degaussing.

MANUFACTURER	MODEL NUMBER
IXI, Incorporated	5661C (5)
Rimage Corporation	5661C

Notes:

1. Must be operated at 2200 Oersteds.

2. The IXI degausser is not qualified to erase disk media composed of barium ferrite materials or media with coercivity ratings above 1100 Oersteds.

3. The bulk erasure of sealed disks packs and hard drives may cause damage (i.e., loss of timing tracks and servo motors) which may prohibit their continued use.

4. The IXI degausser is also listed in Section 2.1.1.2 as being an effective degausser for Type I magnetic tapes.

5. This model is now being manufactured by Rimage Corporation.

OFF-LINE SYSTEMS

Introduction

This section is intended primarily for use by military, DoD, and Civil Agency customers. Off-line systems continue to be a vital means for satisfying certain information systems security requirements. In many cases, off-line is preferable because it is readily releasable, available, portable, inexpensive, and can be tailored to the customers needs. The current off-line program includes manual cryptosystems, call sign and frequency systems, the KL-43 automanual device, and the Revised Battlefield Electronic CEOI System (RBECS). The future of off-line is an integrated plan which includes modular devices, automanual systems, software-based systems, simplified paper products, and traditional paper systems.

Status

Manual Systems:

NSA currently supports over 1300 paper-based cryptosystems, made up of operations codes, numeral and literal cipher systems, authentication systems, and one-time pads. Many of the manual cryptosystems available today were first developed approximately 20 years ago, and have been product improved to some extent over the years. As a result, some products have been cryptographically upgraded while others are being replaced by newer systems of off-line devices.

KL-43

The KL-43 is an automanual, electronic device designed to encrypt (or decrypt) alpha-numberic messages for transmission over non-secure radiotelephone. The devices are portable keyboards that are keyed using printed, non-perforated paper tape. In the field, KL-43s provide an alternative when secure voice (VINSON or SINCGARS) or other secure means are not available. In the office, or while traveling the KL-43 offers a means of highly transportable off-line cryptography.

Signal Operation Instructions (SOI)

SOI, also called CEOI (Communication-Electronics Operation Instructions), are a system of changing the call signs and radio frequencies used during training and combat operations to hinder enemy traffic analysis and direction-finding. SOIs do not protect message text but rather are a transmission security (TRANSEC) tool. SOI booklets today are centrally produced by the NSA, and then distributed to users around the world.

Trends

With manual cryptosystems, the current trend is to simplify off-line paper systems where feasible, and replace them with electronic off-line devices where practical. In either case, the process involves applying the appropriate system to the exact needs of the users.

The Revised Battlefield Electronic CEOI System (RBECS) is an automated system for locally generating SOI and fill data for the SINCGARS type frequency-hopping radio. Once fully deployed RBECS will consist of four basic components: the Lightweight Computing Unit (LCU), RBECS Software, the Random Data Generator (RDG), and the Transfer Device (DTD).

The NSA conducts annual Off-Line COMSEC User's Conferences. The purpose of these conferences is to support the maintenance of an effective Off-Line Plan that identifies current capabilities and projects near-term and long-term future off-line needs ad program trends.

Initiatives

Research and development resources are programmed and will be applied to several initiatives that will provide for the emerging off-line products and techniques for the 1990s. The NSA has initiated the design of off-line modular building blocks to support the evolutionary replacement for the KL-43. The building block approach will utilize 1990s technology, offer greater application flexibility, and provide for faster turn-around from product development to fielding. R&D resources will also be applied to developing software/disk-based solutions to off-line needs where appropriate.

We are presently investigating the technology for developing a modular, building-block, second generation automanual device; researching and developing a floppy disk-based off-line cryptosystem; and looking to develop a Joint Electronic Counter-Countermeasures (ECCM) TRANSEC Support System concept definition as an interoperable version and follow-on to the RBECS.

Overall, the off-line direction for the future is to develop a variety of off-line capabilities that meet the off-line goals of availability, portability, cost-effectiveness, and interoperability, and that are user-tailored to satisfy all off-line requirements.

For additional information contact:

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