Audit Report

OFFICE OF THE INSPECTOR GENERAL

TACTICAL INTELLIGENCE DISSEMINATION SYSTEMS AND RADIOS

Report No. 95-292 August 17, 1995

Department of Defense

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Acronyms

CIM	Corporate Information Management
C^3I	Command, Control, Communications, and Intelligence
TIBS	Tactical Information Broadcast System
TRAP/TDDS	Tactical Related Applications/Tactical Related Applications Data Dissemination System
TRIXS	Tactical Reconnaissance Intelligence Exchange System

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
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August 17, 1995

MEMORANDUM FOR ASSISTANT SECRETARY OF DEFENSE (COMMAND, CONTROL, COMMUNICATIONS, AND INTELLIGENCE)

SUBJECT: Audit Report on Tactical Intelligence Dissemination Systems and Radios (Report No. 95-292)

We are providing this report for review and comments. DoD Directive 7650.3 requires that all recommendations and potential monetary benefits be resolved promptly. Because your office did not comment on a draft of this report, we request that you provide comments on the final report by September 18, 1995. Management comments must indicate concurrence or nonconcurrence with the finding and each recommendation. If management concurs, comments must describe actions taken or planned in response to agreed-upon recommendations and provide the completion dates of the actions. State specific reasons for any nonconcurrence and propose alternative actions, if appropriate.

The courtesies extended to the audit staff are appreciated. If you have any questions, please contact Mr. Harrell D. Spoons, Audit Program Director, at (703) 604-9575 (DSN 664-9575) or Mr. Wayne B. Winkler, Audit Project Manager, at (703) 604-9562 (DSN 664-9562). The distribution of this report is listed in Appendix G. The audit team members are listed inside the back cover.

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Assistant Inspector General
for Auditing

Office of the Inspector General, DoD

Report No. 95-292 **August 17, 1995**
(Project No. 4RF-0070)

Tactical Intelligence Dissemination Systems and Radios

Executive Summary

Introduction. The DoD Corporate Information Management (CIM) initiative provides the methods to achieve standardization, integration, and reduction in the number of automated information systems that DoD Components procure, modernize, and maintain. Reducing the number of systems is accomplished by identifying and consolidating systems that perform similar functions. The audit focused on applying the CIM initiative to three ultrahigh frequency band radios and their associated broadcasts that provide tactical intelligence information throughout the battlefield and around the world. Program costs for the radios total $297.5 million for FYs 1996 through 2000.

Objectives. The objective of the audit was to determine whether the U.S. Special Operations Command (the Command) acquisitions of intelligence systems and applications were economical and efficient as well as compatible and interoperable with the DoD Intelligence Information System architecture. We also determined whether the Command-acquired intelligence systems duplicated Military Department systems. Also, we reviewed the management controls at the Command as they related to our audit objectives.

Audit Results. The Command's acquisition of intelligence systems was accomplished in accordance with DoD acquisition procedures. Further, the Command's intelligence information systems are compatible with the DoD Intelligence Information system architecture and were developed in compliance with the CIM initiative (see Appendix B). However, the Army, the Navy, and the Command are developing, procuring, and distributing three ultrahigh frequency radios with duplicate capabilities. In addition, broadcasting formats used to send tactical data to intelligence consumers have not been standardized. As a result of the multiple data formats and redundant capabilities, unnecessary hardware and software may be developed and procured, additional life-cycle costs may be incurred, information may be lost or misinterpreted, and the goals of the CIM initiative may not be met. Implementing the recommendations will eliminate duplicate capabilities and identify one radio to satisfy user requirements, which should produce future monetary benefits (see Appendix E).

Summary of Recommendations. We recommend that the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) standardize intelligence message broadcasting formats, establish a joint requirement for intelligence

information broadcasting, select one ultrahigh frequency radio to satisfy joint requirements, and establish a Joint Program Management Office to manage future radio and broadcasting requirements.

Management Comments. The Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) did not respond to a draft of this report. Therefore, we ask that the Assistant Secretary provide comments by September 18, 1995.

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Part I - Audit Results

Audit Background

In October 1989, the Deputy Secretary of Defense established the Corporate Information Management (CIM) initiative to provide DoD the methods for reengineering and restructuring its business and administrative processes. In 1993, the CIM initiative expanded from an initial concentration on improving information management in certain administrative areas to all DoD functional areas, including command and control and intelligence. The CIM initiative requires designated officials to provide cross-functional standardization by identifying and selecting the best of existing information systems. During the standardization process, the DoD Components will be using migration* systems and legacy systems. A migration system is an existing information system or a planned and approved information system officially designated as the single system to support standard processes for a function. Systems not identified as migration systems are considered legacy systems. The legacy systems will be eliminated so that all future development resources can be applied to migration systems. The goals of the CIM initiative complement the goals of the command, control, communications, computers, and intelligence for the warrior architecture to get information to the warfighter in the most efficient and effective manner.

The Intelligence Systems Board is responsible to evaluate, consolidate, and integrate the intelligence community's intelligence information systems in order to eliminate duplication of systems and to support standard processes. The Military Communications-Electronics Board is responsible to provide a similar service for the command and control community.

Audit Objectives

The audit objectives were to determine whether intelligence systems for the U.S. Special Operations Command (the Command) were acquired economically and efficiently and whether the Command's intelligence architecture is compatible and interoperable with DoD Intelligence Information Systems. The audit also determined whether the Command unnecessarily duplicated Military Department intelligence systems. The audit evaluated management controls applicable to the audit objectives. The compatibility and interoperability of the

*See Glossary in Appendix C, which describes technical terms and provides information on the functional groups discussed in the report.

Command's intelligence systems with DoD Intelligence Information Systems are discussed in Appendix B. See Appendix A for details on audit scope, methodology, management controls, and prior audit coverage.

Consolidating and Standardizing Tactical Intelligence Dissemination Broadcasts and Radios

The Army, the Navy, and the Command are developing, procuring, and operating ultrahigh frequency radios with duplicate capabilities. In addition, tactical data are sent to intelligence consumers on three broadcasting formats. Multiple development efforts for the radios continue because the Army, the Navy, and the Command did not establish a joint requirement or select one radio to meet joint requirements. In addition, three broadcasting formats are used because the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) has not implemented recent guidance requiring standard broadcasting formats. As a result:

o unnecessary hardware and software may be developed and procured for three radios,

o significant additional life-cycle costs will be incurred to maintain the duplicate radios,

o multiple broadcasting formats may impede interoperability,

o information may be lost or misinterpreted, and

o the standardization goals of the CIM initiative are not being met.

Tactical Intelligence Dissemination Systems and Radios

Broadcasts of tactical intelligence provide threat information throughout the battlefield and around the world. The broadcasts send critical, time-sensitive intelligence data to the warfighters and others, such as national agencies, who access the information through various ultrahigh frequency radios. The Army, the Navy, and the Command are developing three radios operating in the ultrahigh frequency band to broadcast tactical data.

Application of CIM Standardization Policy to Broadcasts of Tactical Intelligence. The DoD CIM standardization policy applies to both tactical intelligence dissemination systems and ultrahigh frequency radios. The DoD guidance related to both standardization and tactical intelligence dissemination systems follows.

o DoD Directive 4630.5, "Compatibility, Interoperability, and Integration of C^3I [Command, Control, and Communications] Systems," November 12, 1992, contains the DoD basic policy regarding compatibility, interoperability, and integration of command, control, communications, and intelligence (C^3I) data, which includes command, control, and communications tactical data links.

o Deputy Secretary of Defense memorandum, "Accelerated Implementation of Migration Systems, Data Standards, and Process Improvement," October 13, 1993, requires that identification of migration systems be completed by October 1996. The guidance states ". . . implementation of standard migration systems may result in the loss of automated functionality by selected system users . . . . Loss of functionality should not be used as a reason to delay migration system selection and deployment . . . . " In summary, the selected migration systems may not totally satisfy all user needs.

o Secretary of Defense memorandum, "Specifications and Standards-A New Way of Doing Business," June 29, 1994, encourages DoD to utilize commercial, state-of-the-art technology instead of military specifications and standards. The guidance also encourages program managers and acquisition decision makers at all levels to challenge requirements that result in unique, nonstandard systems.

o Assistant Secretary of Defense (C^3I) memorandum "C^3I Tactical Data Link Policy," October 18, 1994, elaborates on the policy discussed in DoD Directive 4630.5. The memorandum states " . . . all processed information will be disseminated through LINK-16 to permit standardized, interoperable, data link support directly to the operator on the battlefield." Tactical Data Information Link-J is the format used by LINK-16.

Tactical Intelligence Broadcasting Formats. Three broadcasting systems send information to the Commander's Tactical Terminal, Multi-Mission Advanced Tactical Terminal, and the Tactical Receive Equipment systems.

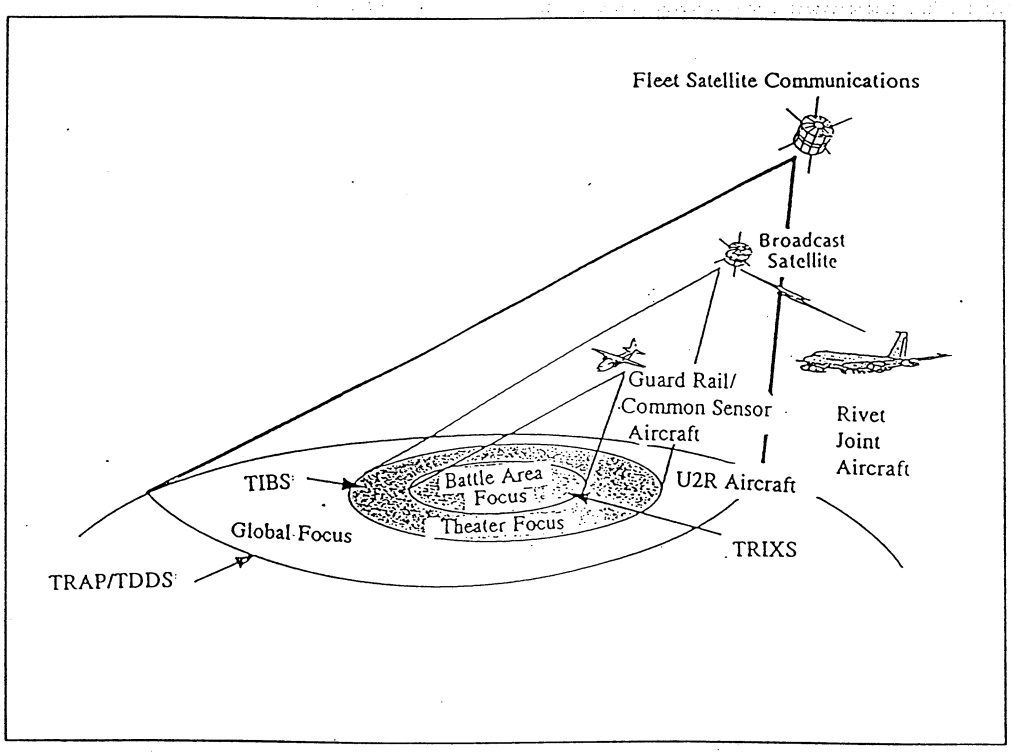
o The Tactical Reconnaissance Intelligence Exchange System (TRIXS), is a tactical network that can be queried by the user and disseminates near-real-time intelligence reports, with battle area focus, from up to five producers. The TRIXS does not support Tactical Data Information Link-J for message transmission. The TRIXS was developed to support ground situation and targeting requirements and operates at the collateral secret and sensitive compartmented information levels.

o The Tactical Information Broadcast System (TIBS) is a near-real-time theater network that can be queried by the user and disseminates tactical information generated by up to 10 producers. The TIBS operates at the collateral secret level and was developed to support the air defense threat requirements. Although TIBS uses a 70-bit Tactical Data Information Link-J

fixed format for message transmission, the Joint Staff's Director for Command, Control, Communication, and Computer Systems (J-6), who is responsible for monitoring broadcasts, has not officially recognized TIBS as an approved format within the Tactical Data Information Link-J message catalog.

o The Tactical Related Applications/Tactical Related Applications Data Dissemination System (TRAP/TDDS) provides worldwide access to selected nationally generated information by satellite relays. The TRAP/TDDS cannot be queried by the user. The TRAP/TDDS uses a 348-bit Tactical Data Information Exchange System fixed format (not Tactical Data Information Link-J) for message transmission. The TRAP/TDDS operates at the collateral secret level and was developed to provide national electronic intelligence to the tactical user.

The figure below illustrates the three broadcast services.



Tactical Intelligence Broadcasts

Standardization of Broadcasting Formats. The October 31, 1994, report on the Intelligence Systems Board's working group study identifies problems in using multiple broadcast formats. For example, the study states that "when converting from one format to another . . . the second format may not accommodate a particular data element or may not preserve the resolution of the original." The study also states ". . . the periodic format changes required to accommodate technical or operational needs have resulted in significant cumulative cost impacts to receiver and Tactical Data Processor developers and maintainers . . . ." The working group study report suggests reengineering and integration of the broadcasts to reduce unnecessary duplication and to use the ultrahigh frequency satellite communications more efficiently.

In summary, converting the various message formats for the various users can lead to loss of critical information. Also, multiple formats increase the development and support costs for radio and tactical data processor developers. To comply with the Assistant Secretary of Defense (C^3I) policy, a common broadcast format to include standard data elements should be selected. The identification of one format would greatly assist in standardizing broadcast radios (receiving and/or transmitting) and would result in life-cycle cost reductions.

Radio Candidates for the Migration Process. The Assistant Secretary of Defense (C^3I) is considering three ultrahigh frequency radios for the migration process: the Commanders' Tactical Terminal, the Multi-Mission Advanced Tactical Terminal, and the Tactical Receive Equipment. Those radios are capable of receiving and/or transmitting one or more of the tactical intelligence dissemination broadcasts. The radios provide the receive functions (the Commander's Tactical Terminal provides both the receive and transmit functions), processing functions, and output functions necessary to deliver critical, time-sensitive information to tactical commanders and intelligence users at all echelons. The radios can be used in aircraft, surface, subsurface, and fixed or mobile ground platforms and vehicles. Senior officials of the Office of the Assistant Secretary of Defense (C^3I) and the Army, Navy, and Air Force recognized duplication of radio capabilities as early as 1991.

Initial Detection of Duplicate Radio Capabilities. In January 1991, the Assistant Secretary of Defense (C^3I) sponsored a Tactical Intelligence Dissemination Tri-Service General Officer's Steering Committee (Steering Committee) to further address the proliferation of efforts to develop military radios to handle tactical intelligence dissemination networks and broadcasts. The mission of the Steering Committee is to increase standardization, and multi-Service interoperability and commonality of radios. The Assistant Secretary of Defense (C^3I) assigned the responsibility for the Steering Committee to the Army. The Army-chaired Steering Committee established two joint panels: the Joint Intelligence Dissemination Requirements Panel and the Joint Intelligence

Dissemination Architecture Panel. Those panels were to develop a requirements baseline to provide near-real-time dissemination of time-sensitive intelligence to the tactical commander and to develop an architectural framework for a joint development effort that assured system interoperability among the Military Departments.

Separate Development Efforts Continue. During February 1992, the Joint Intelligence Dissemination Requirements Panel and the Joint Intelligence Dissemination Architecture Panel recommended that requirements identified by the Military Departments be formalized in a joint mission needs statement and that an update of the Joint Statement of Operational Requirement be developed for near-real-time tactical intelligence dissemination to support the tactical commanders' functional needs with correlated intelligence and access to secondary imagery dissemination. The panels' recommendations acknowledged a need for a three-channel Commander's Tactical Terminal system and identified the Commander's Tactical Terminal system as the near-term solution to meet operational requirements for the Military Departments. The Navy Engineering Design Model would also continue to be funded until a suitable replacement system was available. The panels also recommended establishing a joint effort to develop a system that would meet the Military Departments' long-term needs. Although the Military Departments were aware of the similar capabilities of the three radios, they did not initiate action to choose one radio to satisfy the joint requirements. Accordingly, the Army, the Navy, and the Command continued development efforts to satisfy their respective requirements.

Subsequent Detection of Duplication. A working group of the Intelligence Systems Board issued a report in October 1994 that identified the unnecessary, duplicate capabilities of the Commander's Tactical Terminal, Multi-Mission Advanced Tactical Terminal, and Tactical Receive Equipment. To reduce the duplication, the working group recommends establishing a joint program office responsible for gradually consolidating the three radios into a joint tactical terminal by the end of 1999. Because the recommended gradual consolidation did not provide specific details on how and when to accomplish consolidation, development of the three radios continued.

Commanders' Tactical Terminal

The Commander's Tactical Terminal originated from a joint Army and Air Force operational requirement for a secure, jam-resistant, time-sensitive information dissemination radio. The radio is required to transmit and receive Sensitive Compartmented Information and collateral data throughout the battlefield. The Army's Training and Doctrine Command and the Air Force's

Air Combat Command approved requirements for the Commander's Tactical Terminal in 1983, and the Air Force, as lead agency, established a development program. In September 1989, the Air Force transferred management of the Commander's Tactical Terminal program to the Army's Electronic Warfare/Reconnaissance, Surveillance and Target Acquisition, Program Executive Office for Intelligence and Electronic Warfare, Fort Monmouth, New Jersey.

Commander's Tactical Terminal Capabilities. There are four models of the Commander's Tactical Terminal radio.

o The one-channel model has a single, full-duplex channel for operation in the TRIXS network. The one-channel model is a fully tested, proven, and installed system that is no longer produced.

o The two-channel, hybrid receiver model is a fully militarized two-channel receiver in an airborne qualified chassis. The two-channel model is a fully tested, proven, and installed system that is still being produced.

o The three-channel, hybrid receiver model is a receive-only model and is based on the proven technology of the two-channel hybrid receiver model. This three-channel receiver model is expected to be available October 1995.

o The three-channel, hybrid model is a radio with capabilities to receive and transmit. Two pieces of equipment comprise this model. The three-channel, hybrid model is based on the proven technology of the two-channel, hybrid receiver model and is to be available in October 1995.

Multi-Mission Advanced Tactical Terminal

The Multi-Mission Advanced Tactical Terminal radio originated from a classified naval research project. The Multi-Mission Advanced Tactical Terminal program is jointly managed by the Command and the Assistant Secretary of the Air Force (Acquisition). The Air Force Electronic Systems Center is the production program manager. The Operational Support Office, a component of the Defense Systems Program Office, will manage the planned development of additional capabilities.

Multi-Mission Advanced Tactical Terminal Capabilities. The initial Multi-Mission Advanced Tactical Terminal units will have a two-channel receive capability for TRAP/TDDS broadcasts, and TRAP-only embedded correlation. However, the Multi-Mission Advanced Tactical Terminal has the growth potential to satisfy the current four-channel receive requirement.

System-Unique Architecture. The Multi-Mission Advanced Tactical Terminal is constructed using unique module architecture. This Multi-Mission Advanced Tactical Terminal architecture is not based on commercial industry-wide standards; therefore, existing commercial technology and off-the-shelf products cannot be utilized. As a result, significant costs may be incurred to accommodate the evolutionary growth and expansion of the Multi-Mission Advanced Tactical Terminal, because the system may require radical modification and redesign through the growth stage.

Tactical Receive Equipment

The production version of the Tactical Receive Equipment system is separate from the Tactical Receive Equipment engineering development model, which is already fully developed and supported by the Navy through the year 2010. Our audit focused only on the production Tactical Receive Equipment program.

The Navy's Space and Naval Warfare Systems Command manages the production Tactical Receive Equipment program. Development of the Tactical Receive Equipment system achieved Milestone III (production approval decision) in March 1989. The Navy awarded the base production contract (N00039-91-C-0214) with five options to Frequency Engineering Laboratories on August 9, 1991, as a firm fixed-priced contract. The Tactical Receive Equipment is scheduled for installation on ships, submarines, and patrol aircraft and at naval shore facilities. The Navy has an overall requirement for 278 systems and contracted for 81 units at a cost of $33.5 million. As of December 31, 1994, about $28 million had been expended and 22 systems have been delivered of which 4 will be used for first-article testing.

Tactical Receive Equipment Capabilities. The Tactical Receive Equipment is a two-channel radio that will receive (not transmit) TRAP/TDDS broadcasts. The radio design for the Tactical Receive Equipment utilizes a standard commercial circuitry-type architecture that promotes use of existing commercial technology and off-the-shelf products. The Tactical Receiver Equipment radio is expected to have the ability to combine and amplify the broadcast reception received by four antennas (quad-diversity) and is expected to have the growth potential to expand to four channels.

Tactical Receive Equipment Program Development. The Tactical Receive Equipment program has experienced significant system performance problems, material cost growth, schedule delays, and financial problems with the prime contractor. In addition, system requirements, such as the high-speed fleet

broadcast, have been dropped, and Tactical Receive Equipment radios have been accepted by the Government before first-article testing. As of December 31, 1994, the Space and Naval Warfare Systems Command (Tactical Receive Equipment program office) was correcting the cost, schedule, and performance problems.

Comparison of Radio Features

The three radios, the Multi-Mission Advanced Tactical Terminal, Commander's Tactical Terminal, and Tactical Receive Equipment are being developed with similar capabilities. For example, those radios have planned capabilities that include simultaneous receipt, decryption, and processing of information provided by tactical intelligence dissemination broadcasts. The radios differ in the following areas.

o The various sponsoring organizations use different radio channels and tactical intelligence dissemination broadcasts.

o The Multi-Mission Advanced Tactical Terminal and Commander's Tactical Terminal have an internal communication security capability, whereas the Tactical Receive Equipment has an external communication security device.

o The Tactical Receive Terminal has a unique requirement to combine and amplify the broadcast reception received by four ship antennas (quad-diversity). The Commander's Tactical Terminal contract has quad-diversity as an option that may be exercised when funded.

o The Commander's Tactical Terminal is the only radio that provides both receipt and transmit capabilities.

o The Commander's Tactical Terminal is the only radio that provides a secondary imagery dissemination capability.

Although differences exist among the three radios, advances in technology permit consolidation of all the capabilities into one system to satisfy joint requirements.

Standardization of Radios. Specific requirements may require unique hardware configurations. A summary of existing system capabilities and capabilities under development follows.

Ultrahigh Frequency Radio Capabilities

Capabilities	System: Commander's Tactical Terminal	Multi-Advanced Tactical Terminal	Tactical Receive Equipment
TRAP/TDDS:			
Receive Only	X	X	X
TIBS			
Receive Only	X	X	--
Transmit	X	--	--
TRIXS			
Receive Only	X	--	--
Transmit	X	--	--
Embedded Correlation	--	X	--
Quad-Diversity (On board ship)	*	--	X
Secondary Imagery Dissemination	X	--	--
Open System Architecture	X	--	X

*The Commander's Tactical Terminal contract contains an option to add the quad-diversity capability at an estimated one-time cost of $800,000.

Summary of Total Estimated Radio Costs. Total estimated program costs for the three ultrahigh frequency radios for FY 1996 through FY 2000 is $297.5 million. During that period, the following amounts have been budgeted for the radios:

- $126.8 million for the Multi-Mission Advanced Tactical Terminal,
- $82.3 million for the Commander's Tactical Terminal, and
- $88.4 million for the Tactical Receive Equipment.

Benefits in Identifying One Radio to Meet Requirements

The following four benefits would result from consolidating development efforts for the three radios: compliance with the CIM initiative, economies of scale, elimination of duplicate life-cycle and program management costs, and lower risk.

o Consolidating the three radio development efforts and selecting a migration system will comply with the Deputy Secretary of Defense guidance issued on October 13, 1993, which requires accelerating the implementation of migration systems.

o Economies of scale will result from combining requirements for three radio models and satisfying the requirement with one selected migration system (see Appendix E). For example, doubling the ordered quantity of the Commander's Tactical Terminals could decrease unit cost by 10 to 13 percent.

o A significant reduction in life-cycle costs will result from consolidating the Commander's Tactical Terminal, Multi-Mission Advanced Tactical Terminal, and Tactical Receive Equipment programs. By consolidating efforts into one system, about 20 percent of total program costs could be put to better use.

o Development risks will be reduced because the proven technology from each system can be utilized. Also, future planned improvements and enhancements can be funded for one radio instead of three. In addition, the potential benefits from an open architecture using commercial technology and off-the-shelf equipment can be optimized.

Need for Centralized Responsibility for Meeting Intelligence Broadcast Requirements. As previously discussed, the multiple data broadcast formats do not conform to the DoD policy on standardization. Also, no central acquisition focal point has been designated to have authority over radio development. As a result, unnecessary costs are incurred to develop and maintain three similar ultrahigh frequency radios and their electronic outputs to tactical data processors. The lack of a focal point responsible for establishing joint requirements has resulted in multiple radios and associated intelligence data broadcasts. In addition, although the Military Departments identified common requirements among the users of tactical radios in 1991, three broadcast receiver systems with overlapping capabilities are still being developed.

Joint Program Office. A joint program office is essential for program migration. One office should be responsible for satisfying joint requirements and should provide oversight of the expenditure of funds. In addition to the

monetary benefits that will result from migrating to one program, the DoD goals of eliminating redundant systems, achieving commonality and interoperability for C^3I systems, and optimizing use of commercial technology and commercial off-the-shelf products will be achieved.

Summary

The DoD CIM initiative entails the consolidation and standardization of information systems to include data elements and data links. The DoD guidance implementing the CIM initiative recognizes that consolidation of systems may result in some loss of functionality and states that such loss should not be used as a reason to delay identifying migration systems. The guidance also states that the lack of standardization is rooted in the requirements determination phase of the acquisition cycle. To preclude duplication of systems, the guidance encourages program managers and acquisition decision makers at all levels to challenge unique requirements for information systems.

In our opinion, identifying one radio to satisfy joint user requirements should result in significant cost reductions from economies of scale and elimination of duplicate life-cycle costs and duplicate upgrades to multiple radios with future product improvements. A joint program office would help to accomplish the evolution of the three radios to one migration radio.

Recommendations for Corrective Action

We recommend that the Assistant Secretary of Defense (Command, Control, Communications and Intelligence):

1. Standardize the message reporting formats for the Tactical Related Applications/Tactical Related Applications Data Dissemination System, Tactical Information Broadcast System, and Tactical Reconnaissance Intelligence Exchange System in accordance with DoD standardization guidance prescribed by the Corporate Information Management initiative.

2. Select one radio to satisfy user requirements for intelligence dissemination.

3. Develop a joint requirement for future intelligence information dissemination, based on intelligence requirements for the Military Departments and the U.S. Special Operations Command.

4. Establish a joint program management office over intelligence broadcast radios and designate the lead acquisition authority for that office.

Management Comments Required

The Assistant Secretary of Defense (Command, Control, Communications and Intelligence) did not respond to the draft of this report in time for comments to be incorporated into the final report. If comments are received, we will consider them as comments on the final report.

Part II - Additional Information

Appendix A. Scope and Methodology

Scope and Methodology

U.S. Special Operations Command Acquisition of Intelligence Systems. To assess the Command's performance in acquiring intelligence systems, we reviewed documents submitted for acquisition milestone reviews for 12 intelligence systems funded under the Command's Major Force Program 11. A discussion of the Command's acquisition of intelligence systems and applications is in Appendix D. We reviewed the Command Intelligence Architecture Plan, and the Congressional Justification Book for all Major Force Program 11 funding and General Defense Intelligence Program funding associated with each of the 12 systems we reviewed. We interviewed the program manager for each of the 12 systems and reviewed system files to verify whether each system had a mission needs statement and an acquisition strategy. We reviewed the acquisition decision memorandums to verify that each system was approved for its appropriate acquisition milestone phase. We also verified that each system program manager submitted key acquisition documents to the acquisition decision authority before approval to enter their respective acquisition phase. Specifically, we verified that the following documents were submitted to the acquisition decision authority for each of the 12 systems:

- integrated program summary,
- acquisition program baseline,
- operational requirements document,
- test and evaluation master plan,
- integrated logistics support plan,
- cost and operational effectiveness analysis,
- life-cycle cost estimate,
- development test and evaluation report,
- acquisition decision memorandum, and
- system threat assessment.

Identification of Tactical Intelligence Dissemination Radios. We interviewed officials from each of the ultrahigh frequency radio program offices and reviewed program documents to quantify the extent of duplication within the requirements for the three radios, to obtain cost and schedule estimates for each radio needed to satisfy the common requirements, and to determine the

contractual status of each program. We examined requirements documents for the three radios generated during 1988 through 1994, and we examined 1991 through 1994 production contracts for the radios.

Tactical Intelligence Dissemination Broadcast Systems. We performed a review of tactical intelligence dissemination broadcast systems to evaluate the radio requirements documentation. The review included assessing implementation of DoD CIM guidance identified in Part I of this report and interviewing program officials for the Intelligence Systems Secretariat, Commander's Tactical Terminal, Multi-Mission Advanced Tactical Terminal, and Tactical Receive Equipment.

Limitation of Scope. The Inspector General, U.S. Special Operations Command, was performing an audit of the Special Operations Command Research and Threat Evaluation System during our October 1994 visit to the Command. As a result, we reviewed that system for only those objectives not included in the Command Inspector General's review.

Audit Period, Locations, and Standards. We performed this program audit from September 1994 to January 1995 in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. Accordingly, we included such tests of management controls as were considered necessary. We did not rely on computer-processed data to achieve the audit objectives, and we did not use statistical sampling procedures. The organizations visited or contacted are listed in Appendix F.

Management Control Program

DoD Directive 5010.38, "Internal Management Control Program," April 14, 1987, requires DoD organizations to implement a comprehensive system of management controls that provides reasonable assurance that programs are operating as intended and to evaluate the adequacy of the controls.

Scope of Review of Management Controls. We reviewed the implementation of the management control program within the acquisition function that procures intelligence systems for the Command. Also, we evaluated the management control procedures used by officials within the Office of the Assistant Secretary of Defense (C^3I) to identify duplicate intelligence systems and candidates for migration of automated information systems. We did not classify the problems found during the audit as control weaknesses.

Summary of Prior Audit

Inspector General, DoD, Audit Report No. 95-032, "Department of Defense Intelligence Information System," November 17, 1994, states that systems were not identified for the DoD migration review process. The report recommends that the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) establish roles and responsibilities and establish an all-inclusive list of intelligence systems and base selection of migration systems on a functional economic analysis. Management concurred with the recommendations and initiated a survey to identify all systems of interest and issued new CIM guidance and clarification of existing DoD CIM policy. Our current audit identified similar instances of underreporting of intelligence systems.

Appendix B. Other Matters of Interest

The architecture for the Command intelligence information systems is compatible and interoperable with the DoD Intelligence Information System architecture. Further, the Command architecture was developed in compliance with the Corporate Information Management (CIM) initiative.

Compliance with Deputy Secretary of Defense Memorandum. The October 13, 1993, Deputy Secretary of Defense memorandum accelerating implementation of migration systems, tasked the intelligence community to identify and report all intelligence information systems to the Intelligence Systems Board. Of the 12 intelligence information systems audited, 9 were not included in the Command's CIM submission to the Intelligence Systems Board for evaluation as a system to be consolidated. Funding for the nine systems totals about $291 million. We referred the nine systems to the Chairperson of the Intelligence Systems Board Broadcast Working Group. The Intelligence Systems Board Broadcast Working Group initiated a review of the nine systems in November 1994 to assure they were compatible and interoperable with other Military Department systems.

Appendix C. Glossary

acquisition category. Categories established to facilitate decentralization decision making and execution and compliance with statutorily imposed requirements. The categories determine the level of review, decision authority, and applicable procedures.

command, control, communication, computers, and intelligence for the warrior architecture. This architecture is envisioned to provide, at any time and place, a fused, real-time, true representation of the warfighter's battlespace and the capability of the warfighter to respond and coordinate to prosecute effectively and successfully any mission in the battlespace. The architecture is based on the Corporate Information Management initiative.

cost and operational effectiveness analysis. An analysis of the estimated costs and operational effectiveness of alternative materiel systems to meet a mission need and the associated program for acquiring each alternative.

data element. A basic unit of descriptive information and subcategories (data items) of distinct units and values.

data item. A subcategory of descriptive information or value under a data element.

data link. The means of connecting one location to another for the purpose of transmitting and receiving data.

embedded correlation. An internal receiver capability allowing reception of multiple broadcasts and presentation of a composite representation of the intelligence data.

format. The predetermined arrangement of data, such as characters, in a record or file.

high-speed fleet broadcast. The high-speed fleet broadcast provides data essential to sustaining the operational, weapons, engineering, safety, and administrative needs of the users.

Intelligence Systems Board. In November 1993, the Deputy Assistant Secretary of Defense (Intelligence) and the Director of the Central Intelligence Community Management Staff established the Intelligence Systems Board. The Intelligence Systems Board consists of senior executives of all intelligence and intelligence-related organizations and is responsible for establishing policies and standards for intelligence communications and information systems; developing

top-level information architectures; and establishing organizations, authorities, and procedures to provide central direction of intelligence community information services and resources.

Intelligence Systems Board Broadcast Working Group. The Intelligence Systems Board Broadcast Working Group (the working group) is a subgroup of the Migration Panel of the Intelligence Systems Board. The working group performs technical reviews of migration issues and provides recommendations on migration to the Migration Panel.

Intelligence Systems Secretariat. The Intelligence Systems Secretariat is the primary action arm of the Intelligence Systems Board and is responsible for implementing Intelligence Systems Board policies and developing intelligence architectures conforming to those policies.

joint program. Any Defense acquisition system, subsystem, component, or technology program that involves formal management or funding by more than one DoD Component during any phase of a system's life-cycle.

lead acquisition authority. The DoD Component responsible for the management of the acquisition.

Link-16. The Link-16 standard represents the effort to standardize the message structure, data elements, message protocols, waveform, and radio protocols as the primary tactical data link for the DoD.

life-cycle cost. The total cost to the Government for the acquisition and ownership of a system over its useful life. Life-cycle cost includes the cost of development; acquisition; support; and, where applicable, disposal.

migration system. An existing automated information system or a planned and approved automated information system that has been officially designated to support standard processes for a functional activity on a DoD-wide or DoD Component-wide basis.

milestone phase. The point at which a recommendation is made and approval sought regarding starting or continuing an acquisition program. The following milestones could apply to an acquisition program: 0 (Concept Direction), I (Concept Approval), II (Development Approval), III (Production Approval), and IV (Major Upgrade Decision).

milestone decision authority. The individual with authority to approve moving an automated information system into the next acquisition phase.

quad-diversity. The combining and amplification of broadcast reception received by four antennas. Quad-diversity is a Navy requirement for surface ships and does not apply to Navy submarine and land requirements.

standard data element. Data element registered in accordance with DoD data administration procedures.

Tactical Data Information Exchange System. A dissemination broadcast that processes and distributes nationally generated tactical data to operational forces and commanders worldwide to support indications and warning and mission planning.

Tactical Data Information Link-J. One of several tactical data information links that conforms to the DoD Link-16 standards.

Appendix D. U.S. Special Operations Command Intelligence Systems Development

The U.S. Special Operations Command (the Command) became operational on April 16, 1987. The Command's two basic missions are to provide combat-ready forces to support the theater unified commands and to plan and conduct special operations when specifically directed by the National Command Authority. Activities that may be carried out by the special operations forces to include direct-action special operations, foreign internal defense training, psychological operations, civil affairs, counterterrorism, unconventional warfare, strategic reconnaissance, humanitarian assistance, and theater search and rescue missions.

Major Force Program 11. The Command is charged with developing and acquiring equipment and procuring services, materials, and supplies that are peculiar to special operations. The Command executes, as lead acquisition authority, the special operations program and budget through the funds appropriated in Major Force Program 11. No other unified command has similar budget and procurement responsibilities.

Head-of-Agency Authority. Congress enacted Public Law 100-180 on December 4, 1987, providing Head-of-Agency status to the Command. Head-of-Agency status confers acquisition authority to facilitate the development and procurement of hardware peculiar to special operations. The status also allows the Command to enter into agreements with other agency heads and to delegate procurement functions and program management responsibilities.

The following table lists the Command's intelligence systems we reviewed. Our review of the acquisition strategy and other acquisition documents for the Command's intelligence systems funded under the Major Force Program 11 indicated that the intelligence systems were acquired economically and efficiently.

Appendix D. U.S. Special Operations Command Intelligence Systems Development

System	FY 1995 Funding ($000)	Total[1] Program Funding ($000)	Milestone[2] Phase
Special Operations Command Research Analysis Threat and Evaluation System	$ 8,294	$ 56,345	IV
Multi-Mission Advanced Tactical Terminal[3]	8,046	170,498	III
Special Operations Forces Intelligence Vehicle	12,210	47,349	III
Special Operations Forces Signals Intelligence Manpack System[3]	200	18,700	III
Special Operations Forces Imagery Receiver and Intelligence System[3]	220	4,098	II
Improved Remotely Monitored Battlefield Sensor Systems[3]	1,422	51,960	III
Privateer[3]	40	2,200	II
Silent Shield[3]	164	32,971	II
Integrated Survey Program	1,000[4]	21,280[4]	II
Communications Monitoring Equipment[3]	--	3,196	0
Language Identification and Voice Identification Device[3]	--	650	II
Electronic Filmless Camera System[3]	--	7,344	III
Totals	**$31,596**	**$416,591**	

[1]Not a major system as defined by DoD Directive 5000.1, "Defense Acquisition," February 23, 1991.
[2]See Glossary in Appendix C.
[3]U.S. Special Operations Command system reported to the Intelligence Systems Board by the Inspector General, DoD.
[4]Includes non-Major Force Program 11 funding.

Appendix E. Summary of Potential Benefits Resulting from Audit

Recommendation Reference	Description of Benefit	Amount and/or Type of Benefit
1.	Compliance and Management Controls. Requires standardizing message reporting formats.	Undeterminable. Monetary benefits should be determinable upon format standardization.
2.	Compliance and Management Controls. Identifies one radio to meet requirements.	Undeterminable. Monetary benefits will result from lower unit costs, economies of scale, and reduced life-cycle support costs by developing one radio instead of three.
3.	Program results. Establishes a joint intelligence broadcast dissemination requirement.	Nonmonetary.
4.	Program results. Establishes a joint program office over broadcast receiver systems.	Nonmonetary.

Appendix F. Organizations Visited or Contacted

Office of the Secretary of Defense

Assistant Secretary of Defense, (Command, Control, Communications and Intelligence), Washington, DC
Intelligence Program Support Group, Washington, DC
Intelligence Communications Architecture, McLean, VA
Assistant Secretary of Defense (Special Operations and Low-Intensity Conflict), Washington, DC

Joint Staff

Director for Operations (J-3), Washington, DC

Department of the Army

Deputy Chief of Staff for Intelligence, Washington, DC
Communications-Electronics Command, Fort Monmouth, NJ
Electronic Warfare/Reconnaissance, Surveillance and Target Acquisition, Program Executive Office for Intelligence and Electronic Warfare, Fort Monmouth, NJ

Department of the Navy

Space and Naval Warfare Systems Command, Crystal City, VA

Department of the Air Force

Assistant Chief of Staff Intelligence, Washington, DC
Air Force Materiel Command, Wright-Patterson Air Force Base, OH
Electronic Systems Center, Hanscom Air Force Base, MA

Unified Command

U.S. Special Operations Command, MacDill Air Force Base, FL
Joint Special Operations Command, Fort Bragg, NC
Army Special Operations Command, Fort Bragg, NC

Non-Defense Federal Organizations

Intelligence Community Management Staff, Langley, VA
  Intelligence Systems Board, Langley, VA
MITRE Corp., Bedford, MA

Appendix G. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition and Technology
  Director, Defense Logistics Studies Information Exchange
Under Secretary of Defense (Comptroller)
  Deputy Chief Financial Officer
  Deputy Comptroller (Program/Budget)
Assistant Secretary of Defense (Command, Control, Communications and Intelligence)
  Director, Intelligence Program Support Group
  Director, Intelligence Communications Architecture
Assistant Secretary of Defense (Special Operations and Low Intensity Conflict)
Assistant to the Secretary of Defense (Public Affairs)
Director, Joint Staff

Department of the Army

Auditor General, Department of the Army

Department of the Navy

Assistant Secretary of the Navy (Financial Management and Comptroller)
Auditor General, Department of the Navy

Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and Comptroller)
Auditor General, Department of the Air Force

Unified Command

Commander In Chief, U.S. Special Operations Command
  Joint Special Operations Command
  Army Special Operations Command

Other Defense Organizations

Director, Defense Contract Audit Agency
Director, Defense Information Systems Agency
Director, Defense Logistics Agency
Director, National Security Agency
Inspector General, National Security Agency
Inspector General, Defense Intelligence Agency

Non-Defense Federal Organizations and Individuals

Office of Management and Budget
Technical Information Center, National Security and International Affairs Division, General Accounting Office

Chairman and ranking minority member of each of the following congressional committees and subcommittees:

Senate Committee on Appropriations
Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Governmental Affairs
Senate Select Committee on Intelligence
House Committee on Appropriations
House Subcommittee on National Security, Committee on Appropriations
House Committee on Government Reform and Oversight
House Subcommittee on National Security, International Affairs, and Criminal Justice, Committee on Government Reform and Oversight
House Committee on National Security
House Permanent Select Committee on Intelligence

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