# Audit Report

COMMERCIAL SATELLITE LEASED CAPABILITY

Report No. 99-111 March 26, 1999

Office of the Inspector General
Department of Defense

**Additional Copies**

To obtain additional copies of this audit report, contact the Secondary Reports Distribution Unit of the Audit Followup and Technical Support Directorate at (703) 604-8937 (DSN 664-8937) or FAX (703) 604-8932 or visit the Inspector General, DoD Home Page at: www.dodig.osd.mil.

**Suggestions for Future Audits**

To suggest ideas for or to request future audits, contact the Audit Followup and Technical Support Directorate at (703) 604-8940 (DSN 664-8940) or FAX (703) 604-8932. Ideas and requests can also be mailed to:

OAIG-AUD (ATTN: AFTS Audit Suggestions)
Inspector General, Department of Defense
400 Army Navy Drive (Room 801)
Arlington, VA 22202-2884

**Defense Hotline**

To report fraud, waste, or abuse, contact the Defense Hotline by calling (800) 424-9098; by sending an electronic message to Hotline@DODIG.OSD.MIL; or by writing to the Defense Hotline, The Pentagon, Washington, D.C. 20301-1900. The identity of each writer and caller is fully protected.

**Acronyms**

| | |
|---|---|
| ASD (C3I) | Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) |
| CSCI | Commercial Satellite Communications Initiative |
| DISA | Defense Information Systems Agency |
| DITCO | Defense Information Technology Contracting Organization |
| INMARSAT | International Maritime Satellite |
| MILSATCOM | Military Satellite Communications |
| MSS | Mobile Satellite Services |
| MTW | Major Theater War |
| QDR | Quadrennial Defense Review |
| SATCOM | Satellite Communications |
| SWARF | Senior Warfighters Forum |
| TSR | Telecommunications Service Request |
| WWOLSR | World Wide On-Line System Replacement |

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202

March 26, 1999

MEMORANDUM FOR ASSISTANT SECRETARY OF DEFENSE (COMMAND, CONTROL, COMMUNICATIONS, AND INTELLIGENCE)
DIRECTOR, JOINT STAFF
DIRECTOR, DEFENSE INFORMATION SYSTEMS AGENCY

SUBJECT: Audit Report on Commercial Satellite Leased Capacity (Report No. 99-111)

We are providing this report for review and comment. We considered management comments on a draft of this report in preparing the final report.

DoD Directive 7650.3 requires that all recommendations be resolved promptly. The Senior Civilian Official, Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) comments were generally responsive and indicated that the procedures for tracking and accumulating usage and cost data, clarification of which types of commercial satellite communications contracts require reporting, and the reevaluation of which satellite services should be part of a long haul communications policy would be addressed. We request that the Senior Official provide additional comments on the nature and expected completion dates of those new procedures and reevaluations. The Director, Defense Information Systems Agency indicated that several new initiatives to provide flexibility in meeting customer needs were being pursued. We request the Director provide additional comments on the nature and expected completion dates of those initiatives. As a result of management comments, we revised Recommendation A.1. to more appropriately reflect the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) responsibility to establish policy. The additional comments are requested by May 26, 1999.

The Vice Chairman, Joint Chiefs of Staff comments were responsive and no further Joint Staff comments are necessary.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Mr. Robert M. Murrell at (703) 604-9210 (DSN 664-9210) (rmurrell@dodig.osd.mil) or Ms. Nancee K. Needham at (703) 604-8974 (DSN 664-8974) (nkneedham@dodig.osd.mil). See Appendix F for the report distribution. The audit team members are listed inside the back cover.

Robert J. Lieberman
Assistant Inspector General
for Auditing

## Office of the Inspector General, DoD

**Report No. 99-111** **March 26, 1999**
(Project No. 6RD-0056.03)

# Commercial Satellite Leased Capacity

## Executive Summary

**Introduction.** This report is the fourth in a series resulting from our audit, "Communications Capability Within DoD to Support Two Major Regional Conflicts Nearly Simultaneously." This report discusses the management, procurement, and usage of commercial satellite systems within the DoD. Report No. 97-187, "Communications Capability Within DoD to Support Two Major Regional Conflicts Nearly Simultaneously," July 14, 1997, discusses military satellite communications and the requirements determination process for deliberate planning related to the national military strategy. Report No. 98-009, "Demand Assigned Multiple Access Terminals," October 14, 1997, discusses the management of the fielding and funding of multiple access terminals. Report No. 99-009, "Coordination of Electromagnetic Frequency Spectrum and International Telecommunications Agreements," October 9, 1998, discusses the coordination of electromagnetic frequency spectrum and the management of international telecommunications agreements.

**Objectives.** The overall audit objective was to evaluate DoD communications capabilities to support two major theater wars. Specifically, we evaluated the management, procurement, and usage of commercial satellite systems within the DoD. The audit also reviewed the management control program as it applied to the overall audit objective.

**Results.** DoD could not determine the total leased commercial satellite communications bandwidth capacity, the total costs associated with that capacity, the type of transmission media used for long-haul telecommunications services, or the total capacity available to supplement military satellite communications and the two major theater war scenarios. As a result, the DoD communications decision makers' ability to use historical trends to predict future capacity and cost requirements was impaired, the Joint Staff deliberate planning process was hampered, and current and future capabilities to support the two major theater war scenarios could not be determined (Finding A).

DoD has not implemented an efficient system to centrally monitor and track the inventory of international maritime satellite equipment and airtime costs. Further the total number of DoD-owned international maritime satellite terminals and the associated airtime costs could not be determined. As a result, the ability of communications managers to effectively oversee the acquisition and management of satellite equipment and airtime costs was degraded and economies of scale could not be achieved through combined purchases. Further, communications managers could not effectively plan for integrating the use of future personal communications services capabilities into the deliberate planning process (Finding B).

The $1.4 billion Commercial Satellite Communications Initiative was not providing technically efficient or cost-effective satellite communications services to support the missions of many warfighters. As a result, warfighters were continuing to lease

commercial satellite communications through multiple commercial contracting vehicles and not all economies of scale, as intended by Congress, were being achieved (Finding C).

**Summary of Recommendations.** We recommend revising DoD Directive 4640.14 to require monitoring and tracking of long-haul communications by type of transmission media, accumulated contract costs, and the total available leased commercial satellite capacity, and an assessment of the mix of DoD-owned and commercially leased satellite capacities on a periodic basis to support the communications deliberate planning process. We also recommend designating personal communications services equipment as long-haul communications assets; creating procedures for acquiring, monitoring, and reporting of all personal communication services equipment and airtime services for inclusion in the deliberate planning process. We further recommend retention of the Commercial Satellite Communications Initiative contract for large bandwidth users, awarding a new contract for those warfighters that cannot be serviced by the contract, and establishing a program for obtaining sufficient quantities of technically adequate terminals to access available bandwidth capacity.

**Management Comments.** The Senior Civilian Official, Office of Assistant Secretary of Defense (Command, Control, Communications, and Intelligence), concurred with the findings and recommendations and stated that DoD does not accurately track leased commercial communications capacity and costs or quantities and associated costs of INMARSAT terminals. He also stated that some organizations have circumvented existing policy, and contracted outside the Defense Information Technology Contracting Organization for terminals and service. The Senior Official agreed that these inadequacies need to be remedied and stated that, in conjunction with the Defense Information Systems Agency, they will improve procedures for tracking and accumulating usage and cost data. In addition, the Assistant Secretary stated that procedures would be established for centralized procurements. In addition, they would reevaluate whether commercial satellite personal communications should be part of a long haul or separate communications policy that recognizes its role in tactical support to deployed mobile forces. The Joint Staff concurred with the finding and recommendation. The Vice Chairman stated that the Defense Information Systems Agency had been tasked to conduct a media assessment and the U.S. Space Command was to assess satellite communication capacities to support warfighter requirements. The Vice Chairman further stated that the Joint Staff would lead a media assessment in CY 2000 to assess the right mix of commercial and military-owned satellite communications. The Director, Defense Information Systems Agency concurred with the findings and recommendations and stated that a migration strategy that will integrate provisioning information between the Defense Information Systems Agency and the Defense Information Technology Contracting Organization is being pursued.

**Audit Response.** In response to management comments, we revised portions of the report as it was necessary. We request that the Assistant Secretary (Command, Control, Communications, and Intelligence) and the Director, Defense Information Systems Agency provide additional comments to the final report as indicated in the discussion of the findings. These comments should be provided by May 26, 1999.

# Table of Contents


## Executive Summary i

## Introduction

Background 1
Objectives 2

## Findings

A. Commercial Satellite Communications Capability and Costs 3
B. Acquisition and Management of International Maritime Satellite Terminals and Service 14
C. Commercial Satellite Communications Initiative 25

## Appendixes

A. Audit Process 32
Scope 32
Methodology 32
Management Control Program 33
Summary of Prior Coverage 34
B Glossary 35
C. Policy and Procedures 37
D. Telecommunications Inventory and Procurement Process 39
E. Bosnia Commercialization Plan 41
F. Report Distribution 43

## Management Comments

Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) 45
Joint Chiefs of Staff 49
Defense Information Systems Agency 56
U.S Central Command 64

## Background

This report is the fourth in a series resulting from our audit of "Communications Capability Within DoD to Support Two Major Regional Conflicts Nearly Simultaneously." This report discusses the management, procurement, and usage of commercial satellite systems within the DoD. Report No. 97-187, "Communications Capability Within DoD to Support Two Major Regional Conflicts Nearly Simultaneously," July 14, 1997, discusses military satellite communications and the requirements determination process for deliberate planning related to the national military strategy. Report No. 98-009, "Demand Assigned Multiple Access Terminals," October 14, 1997, discusses the management of the fielding and funding of access terminals. Project No. 6RD-0056.02, "Coordination of Electromagnetic Frequency Spectrum and International Telecommunications Agreements," discusses the coordination of electromagnetic frequency spectrum and the management of international telecommunications agreements.

**Bottom-Up Review.** In March 1993, the Secretary of Defense initiated a comprehensive review of the nation's defense strategy. The Secretary requested the review because of the dramatic changes that had occurred in the world as a result of the end of the cold war and the dissolution of the Soviet Union. The report, "Bottom-Up Review," was issued in October 1993. The report provides direction for changing the focus from a strategy to meet a global Soviet threat to one designed for aggression by regional powers. The report states that the United States must "field forces capable, in concert with its allies, of fighting and winning two major regional conflicts that occur nearly simultaneously."

The two major regional conflict scenarios that were selected for planning and assessment purposes included aggression by Iraq against Kuwait and Saudi Arabia, and aggression by North Korea against South Korea. Those scenarios were to serve as baselines by which to assess the capabilities of U.S. forces.

**Quadrennial Defense Review.** In May 1997, the Secretary issued the "Report of the Quadrennial Defense Review (QDR)." The report provides a comprehensive assessment of the nation's defense requirements. That assessment was based on emerging threats to U.S. security over the next two decades and a strategy that maintains American leadership, engagement, and military superiority into the 21st century. The QDR strategy had three main elements:

- the ability to shape the international environment by promoting regional stability, preventing or reducing conflicts and threats, and deterring aggression and coercion on a day-to-day basis in key regions of the world;

- the need to respond quickly to the full spectrum of crises, from conducting concurrent smaller-scale contingency operations to fighting and winning two major theater wars; and

- the mandate to prepare now to meet the security challenges of an unpredictable future and discourage prospective rivals from embarking on a military competition with the U.S.

During the QDR, the terminology "Two Major Regional Conflicts Nearly Simultaneously" was changed to "Two Major Theater Wars with Overlapping Time Frames." The remainder of this report will replace the designation, "two major regional conflicts," with "two major theater wars (MTWs)."

**MTWs and Other Contingencies.** The current defense strategy determined by the QDR is that U.S. forces must be capable of fighting and winning two MTWs that occur within overlapping time frames. In addition, the QDR states that the U.S. needs to place greater emphasis on maintaining continuous overseas presence to shape the international environment and to be able to respond to several smaller-scale contingencies and asymmetric threats. Further, the report states that the U.S. must place more emphasis on preparing for the future to defend against new capabilities. Future planning must achieve new levels of effectiveness in contingencies.

**Information Superiority.** Information superiority has been determined to be a major factor in operations planning. The QDR defines information superiority as the ability to collect and distribute to U.S. forces throughout the battlefield an uninterrupted flow of information, while denying the enemy's ability to do the same. According to the Secretary's message in the QDR, "the key to the success is an integrated 'system of systems' that will give them superior battlespace awareness, permitting them to dramatically reduce the fog of war." The system of systems:

> . . . will integrate intelligence collection and assessment, command and control, weapons systems, and support elements. It will connect the commanders to the shooters and suppliers and make available the full range of information to both decision-makers in the rear and the forces at the point of the spear.

**Telecommunications in Two MTWs.** To accomplish the national military strategy of preparing for two MTWs, the U.S. military forces have established a specific operational objective of defeating an enemy quickly, decisively, and with few casualties. The objective relies heavily on the ability to transfer information critical to the warfighter at rates superior to the enemies' ability to do so. Communications resources transfer information to the warfighter by terrestrial wires, line-of-sight microwave broadcast, fiber optic cables, satellite relays, and wireless devices.

## Objectives

The overall audit objective was to evaluate DoD communications capabilities to support two MTWs. Specifically, we evaluated the management, procurement, and usage of commercial satellite systems within the DoD. The audit also reviewed the management control program as it applied to the overall audit objective. See Appendix A for a discussion of the scope, methodology, a review of the management control program and a summary of prior audit coverage. See Appendix C for a glossary of technical terminology and definitions used in the report.

# A. Commercial Satellite Communications Capability and Costs

DoD could not determine the total leased commercial satellite communications bandwidth capacity, the total costs associated with that capacity, the type of transmission media used for long-haul telecommunications services or the total capacity available to supplement military satellite communications (MILSATCOM) and the two MTW scenarios. These deficiencies existed because policies and procedures did not require the Defense Information Systems Agency (DISA) to monitor and track leased commercial satellite communications bandwidth capacity and costs, types of transmission media used for long-haul telecommunications services, or require the Joint Staff to assess the mix of DoD-owned and commercially leased satellite capacities. As a result, the DoD communications decision makers' ability to use historical trends to predict future capacity and cost requirements was impaired, the Joint Staff deliberate planning process was hampered, and current and future capabilities to support the two MTW scenario could not be determined.

## Communications Support for Two MTWs

Inspector General, DoD, Report No. 97-187, "Communications Capability Within the DoD to Support Two Major Regional Conflicts Nearly Simultaneously," July 14, 1997, identified DoD-owned satellite capacity shortfalls needed to satisfy the rapid growth of information transfer requirements. These shortfalls caused DoD to rely on other sources of telecommunications resources, to supplement DoD owned assets in support of military requirements for two MTWs. One of those sources was U.S. leased commercial satellite capacity. Warfighter information requirements that must be satisfied by satellite communications systems was growing. Space-based systems were the main, and many times the only assured, immediately assessable, and adequate information transfer capability the warfighters had to satisfy the growing need for voice, data, and video communications. To meet the demands for information transfer, and support the two MTW scenarios, DoD must rely on a variety of satellite communications systems, both military and commercial.

## Policies and Procedures

The Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) (ASD[C3I]) guidance for efficient and economical use of base and long-haul telecommunications equipment and services was found in numerous Defense and DISA documents. See Appendix C for a complete discussion of policy guidance.

## Determination of Bandwidth, Costs, and Transmission Media

DoD could not determine the total leased commercial satellite communications bandwidth capacity, the total costs associated with that capacity, the type of transmission media used for long-haul telecommunications services, or the total capacity available to supplement MILSATCOM and the two MTW scenarios.

**DISA Database Systems.** The Defense Information Systems Network Service Center operates the world wide on-line system-replacement (WWOLSR) database. The WWOLSR is a database that maintains an inventory of long-haul telecommunications circuits and trunks. The Defense Information Technology Contracting Organization (DITCO) acquires, maintains, and disburses payments for long-haul telecommunications equipment leased by the Services and other Government agencies. DITCO maintains contractual and financial data for telecommunications leases in two primary databases: the contractual on-line procurement system and the financial accounting and budget system. See Appendix E for a detailed description of telecommunications inventory and the procurement process.

**Commercial Satellite Bandwidth Capacity.** We evaluated the information contained in the WWOLSR and the contractual on-line procurement system to determine the total DoD leased bandwidth. Our initial evaluation of the WWOLSR data was to determine the bandwidth recorded for International Maritime Satellite (INMARSAT) services. We determined that only 113 INMARSAT entries existed on the WWOLSR. DISA personnel explained that because of the nature of INMARSAT services (there is no fixed circuit because the terminals are mobile), they stopped recording INMARSAT data after the 113 entries. However, we determined that at least 2,208 terminals and associated airtime services exist in DoD. Each terminal represents the potential access to a minimum of one long-haul satellite circuit or airtime service. As a result, we were unable to rely on the WWOLSR to provide all DoD commercial satellite bandwidth capacity totals. We did not test the WWOLSR further. Finding B provides a detailed description of the DoD inability to quantify the INMARSAT inventory of terminals, airtime services, and associated costs.

We also requested that DITCO provide us with the total bandwidth capacity associated with contracts for leased commercial satellite service for FYs 1992 through 1997. DITCO was unable to determine the total bandwidth capacity associated with contracts for leased commercial satellite service for those fiscal years. We determined, however, that the DITCO databases were not designed to collect or maintain specific data on commercial satellite bandwidth capacity.

Further, at the three unified commands we visited, we requested the total bandwidth capacity for commercial satellite service leased by each command. None of the unified commands were able to provide us with the total bandwidth capacity for commercial satellite service leased by their command.

**Commercial Satellite Lease Costs.** We also requested that DITCO provide all commercial satellite lease costs incurred by DoD during FYs 1992 through 1997. DITCO identified satellite leasing contracts in existence as of FY 1997

and researched the costs associated with those contracts during FYs 1992 through 1997. See Table 1 for the commercial satellite lease costs.

**Table 1. Commercial Satellite Lease Costs**
**Fiscal Years 1992 through 1997**

| Fiscal Year | Recurring Costs | Nonrecurring Costs | Total Annual Costs |
|---|---|---|---|
| 1992 | $ 5,106,141 | $ 556,483 | $ 5,662,624 |
| 1993 | 7,725,983 | 164,544 | 7,890,527 |
| 1994 | 10,376,613 | 1,566,629 | 11,943,242 |
| 1995 | 22,480,357 | 180,194 | 22,660,551 |
| 1996 | 28,090,552 | 792,132 | 28,882,684 |
| 1997 | 30,373,149 | 908,020 | 31,281,169 |
| **Total** | **$104,152,795** | **$4,168,002** | **$108,320,797** |

However, this cost data was not an accurate representation of the total satellite leasing costs for FYs 1992 through 1997 for two reasons. Internally, DITCO was unable to systematically identify leased satellite services contracts that were closed prior to FY 1997, and consequently was unable to identify the lease costs for the closed contracts. Additionally, DITCO could not include costs for leases of which they had no previous knowledge.

**Transmission Media.** The WWOLSR is capable of sorting telecommunications services by types of transmission media based on codes that may be entered into the database through a telecommunications service request (TSR). Examples of transmission media include terrestrial wires, line-of-sight microwave broadcast, fiber optic cables, satellite relays, and wireless devices. We tested the accuracy of those entries for two codes. The code CST was used for commercial satellite and the code IMS was used for INMARSAT. We determined that WWOLSR contained 47 entries for commercial satellites; however, DITCO had identified at least 97 commercial satellite circuits. As described previously, the WWOLSR does not contain entries for all INMARSAT services. We did not determine if codes exist for all types of transmission media. However, for the two codes we tested, the information in WWOLSR was incomplete. The WWOLSR may further be inaccurate because it is updated with information from the contractual on-line procurement system database. The procurement system database cannot sort contractual data based on the specific type(s) of telecommunications transmission media. The database does not have a coding and sorting capability in place to identify services for specific types of transmission media. Some communications contracts do not specify the type of medium to be used, in which case the vendor can connect using multiple types of media. For example, between two points the connection may be provided by a fiber optic cable for a portion of the distance and by a satellite link for another portion of the distance. Other contracts may require the vendor to connect using a specific media such as a satellite link. Operational requirements of the user

indicates the situation. As a result of the sorting limitation, the contractual on-line procurement system could not provide accurate updates to the WWOLSR on types of commercial transmission media.

**Capacity Available to Supplement MILSATCOM and the Two MTW Scenarios.** DoD could not determine the total leased commercial satellite communications bandwidth capacity available to supplement MILSATCOM and the two MTW scenarios because the DISA databases did not provide the necessary information.

## DoD Efforts to Determine Commercial Satellite Lease Costs

The Joint Requirements Oversight Council tasked the Senior Warfighters Forum (SWARF) to review satellite capacity requirements, evaluate and match the needs to the current capabilities, and select alternative courses of action. The SWARF is comprised of representatives of the Joint Staff, unified commands, Services, and Defense agencies.

In January 1997, in preparation for SWARF, the Joint Staff requested that the unified commands, Services, and DoD agencies provide input to determine the total DoD leased commercial satellite costs.

The cost data provided to SWARF was incomplete and inaccurate. Statistical data was counted twice between DITCO and unified commands responses. The unified commands' own estimates were higher than the corresponding DITCO estimates for the unified commands, and some of the estimates included costs for INMARSAT terminals and some did not. The responses were confusing because of different user names cited, circuit bundling, and incomplete information from DITCO. See Table 2 for the commercial leasing costs.

**Table 2. Commercial Satellite Lease Costs Reported by SWARF**
(in thousands)

| | FY 1994 | FY 1995 | FY 1996 | FY 1997 | Total |
|---|---|---|---|---|---|
| Air Force SPC* | $ 7,180 | $ 7,180 | $ 7,180 | $ 7,180 | $ 28,720 |
| Atlantic Command | 2,949 | 1,544 | 2,053 | 775 | 7,321 |
| Central Command | 8,145 | 8,591 | 6,967 | 9,909 | 33,612 |
| Commercial SATCOM** Initiative | 20,000 | 10,000 | 50,900 | 50,900 | 131,800 |
| European Command | 2,849 | 2,849 | 8,410 | 7,163 | 21,271 |
| Intelligence | 24,125 | 25,150 | 38,600 | 35,350 | 123,225 |
| Marine Corps | 156 | 202 | 522 | 736 | 1,616 |
| Navy | 10,500 | 11,030 | 30,930 | 24,500 | 76,960 |
| Other DITCO Leases | 16,812 | 16,812 | 16,812 | 16,812 | 67,248 |
| Southern Command | 15 | 15 | 4,394 | 4,472 | 8,896 |
| Transportation Command | 3,281 | 4,513 | 4,731 | 5,098 | 17,623 |
| **Total** | **$96,012** | **$87,886** | **$171,499** | **$162,895** | **$518,292** |

* Space Command
** Satellite Communications

The results indicated that DoD spent $518 million for leased commercial satellite communications during FYs 1994 through 1997. SWARF acknowledged that discrepancies existed between the unified commands and DITCO records of costs. The $67.2 million identified as other DITCO leases, in Table 2, included leasing costs attributed to other Government agencies (for example, Department of State and the Federal Aviation Administration). The specific amounts attributed to those agencies were not extracted and, as a result, the SWARF totals were inflated. Further, costs for the U.S. Pacific Command, U.S. Special Operations Command, and U.S. Army Space Command were not included in the results. We conducted research to identify the total DoD costs for commercial satellite leased capacity and were able to substantiate that DoD spent at least $277 million on commercial satellite communications during FYs 1992 through 1997, as shown in Table 3.

**Table 3. Commercial Satellite Lease Costs**
**Fiscal Years 1992 Through 1997**

| Category | Recurring Costs | Nonrecurring Costs | Total |
|---|---|---|---|
| DITCO CSCI* | $ 43,286,192 | $ 149,153 | $ 43,435,345 |
| DITCO Miscellaneous Leases | 105,682,968 | 4,343,371 | 110,026,339 |
| INMARSAT | 69,986,003 | 53,145,895 | 123,131,898 |
| **Total** | **$218,955,163** | **$57,638,419** | **$276,593,582** |

* Commercial Satellite Communications Initiative

We believe the difference between the SWARF $518 million costs identified and the $276 million we substantiated shows the complexity associated with determining total costs. Our calculations were based on documentation provided by DITCO, which was chartered to lease all DoD long-haul communications. In addition, we reviewed satellite services used by the U.S. Central Command, U.S. European Command, U.S. Pacific Command, U.S. Space Command, DISA, and the supporting components. Table 3 is an accurate representation of DoD commercial satellite lease costs because it does not include costs associated with other Government agencies.

## Monitoring and Tracking of Commercial Satellite Contracts

Current policies require DISA to acquire, manage, and inventory long-haul telecommunications equipment and services. However, DISA was not required to monitor and track leased commercial satellite communications bandwidth capacity and costs or the types of transmission media used for long-haul telecommunications services. Because DISA did not monitor and track leased commercial satellite capacity and costs, the databases were not designed to collect and maintain the data. Therefore, DISA was unable to identify a universe of leased commercial satellite services, calculate the total bandwidth capacity of existing services, or determine the total costs for those services.

**WWOLSR.** The WWOLSR could not provide an accurate universe of all commercial SATCOM services. We tested the database and determined that the commercial SATCOM portions were not reliable. As a result, DISA could not identify a universe of commercial satellite circuits or calculate the total bandwidth of existing services using the WWOLSR. At the time of this review,

the nature of the WWOLSR would make it the best focal point for gathering information on identifying the universe and the total bandwidth of existing commercial satellite circuits.

**Financial Accounting and Budget System.** The financial accounting and budget system in use was an accounting and budget database, and was not designed for tracking or monitoring costs associated with specific types of transmission media. Because a valid universe of contracts could not be systematically identified in the contractual on-line procurement system, the associated costs could not be systematically identified in the budget system. DITCO personnel relied on their knowledge of contracts, which contained satellite service as a transmission media, and manually queried the budget system to research costs for those contracts.

Further, the budget system did not provide accumulated costs associated with contracts. The budget system aggregates costs in each year; however, previous year costs were not transferred into the current year to show accumulated costs. To identify the total costs for a multiyear contract, DITCO personnel must query the archives for each year the contract had been in existence. Because archives were maintained on magnetic tape, the process was very cumbersome and time consuming.

**Migration Strategy.** DISA is implementing a migration strategy, in which the current inventory database and the contractual and financial systems are being updated, redesigned, or eliminated. The revised systems will be combined with new systems to form a set of inter-relational databases and enhanced contracting and financial systems. We reviewed the migration strategy and were unable to determine whether the new systems would provide the capability to code and sort commercial satellite services according to the specific types of transmission media. As a result, the new systems will not be able to identify a universe, calculate the total bandwidth, or determine the total costs of leased commercial satellite services.

It is important that DISA monitor and track the data for communications managers. By implementing a capability to collect and analyze data based on transmission media, bandwidth quantities, and cumulative costs, DISA could provide information that would enable communications managers to:

- analyze trends in satellite bandwidth usage,
- identify trends in costs related to specific types of transmission media,
- calculate the impact on costs associated with dramatic increases in bandwidth usage as in Desert Storm and Operation Joint Endeavor, and
- forecast future commercial satellite expenditures.

Communications managers would not have to rely on the DISA corporate memory to identify contracts containing specific types of transmission media nor would they need to survey DISA customers to determine overlooked costs.

## Impact on Management

**Historical Trends.** Without the ability to identify total DoD leased bandwidth capacity and the associated costs, communications managers cannot effectively monitor trends in commercial SATCOM usage or track costs. Communications managers cannot quantitatively identify how much DoD has increased the use of commercial SATCOM services, nor can managers quantitatively analyze commercial SATCOM costs to determine if costs are increasing or decreasing. DoD as a whole cannot determine if the use of commercial SATCOM has been an effective course of action.

**Future Capabilities and Costs.** According to the Capstone Requirements Document, the unified commands and other users must be able to plan for the use of SATCOM resources, including commercial, based on the Joint Chiefs of Staff allocation of SATCOM resources. Since all commercial SATCOM bandwidth capacity cannot be identified, the ability of the Joint Staff to assess the mix of DoD-owned and commercially leased satellite capacities and the ability of SATCOM users to conduct effective planning is degraded. Further, the Joint Requirements Oversight Council requires that future communications funding not exceed current FY 1997 levels.

Communications managers are challenged by the need to select an effective mix of MILSATCOM and commercial SATCOM to meet future warfighter communications requirements. In addition, the Capstone Requirements Document emphasizes that DoD needs to ensure that MILSATCOM system acquisition savings are not foregone by excessive commercial SATCOM leasing costs. Periodically, the Joint Staff should assess the need for DoD-owned and commercially leased satellite capacities to meet the requirements for deliberate planning. However, without clearly quantifiable historical costs, the ability of communications managers to select the best mix of MILSATCOM and commercial SATCOM to support the two MTW national strategy within current funding constraints is degraded.

## Conclusion

Commercial SATCOM provides a broad range of world wide, highly flexible communications capabilities to support the warfighter. Communications managers are faced with the challenge of determining cost-effective commercial satellite communications capabilities to augment existing MILSATCOM systems, so that the combined communications capabilities are adequate to support the nation's two MTW strategies established in the QDR.

DoD policies require DISA to acquire, manage, and inventory long-haul communications service, but do not require DISA to monitor and track contracts by the type of transmission media, by quantity of leased bandwidth capacity, or to accumulate the life cycle cost. The existing DISA databases were not designed to support communications managers' needs to determine the total amount of bandwidth and associated cost of leased commercial satellite communications services.

It is important that DISA specifically track data so that timely and accurate information is available to communications managers for decision making and planning for future leased communications services. Management needs to evaluate specific subgroups of telecommunications to determine which types of transmission media provide the greatest return for funding. Lacking clearly quantifiable historical costs on DoD use of leased commercial services, communications managers were unable to effectively monitor trends in satellite usage and track satellite costs, nor can managers quantitatively determine if the costs of commercial satellite services are increasing or decreasing. The communications managers ability to determine the best mix of MILSATCOM and commercial SATCOM to use in support of the MTW capability was degraded. A revision is needed of current DoD policy on managing long-haul communication services to provide DoD communications managers timely, reliable, and accurate data on the cost of commercial services.

## Management Comments on the Finding

**Assistant Secretary of Defense (Command, Control, Communications, and Intelligence Comments).** The Senior Civilian Official, Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence), partially concurred with our finding that DoD does not accurately track leased commercial satellite communications capacity and costs. The Senior Official agreed that this inadequacy needs to be remedied. Management also stated that the report does not distinguish between commercial telecommunications services and satellite transponder leases. In commercial telecommunications services DoD buys assured communications and quality of service. Specific end-to-end communications connections are often unknown, and it would not be practical to attempt to track transmission media in those cases.

**Vice Chairman, Joint Chiefs of Staff Comments.** The Vice Chairman, Joint Staff, concurred with the finding and stated that the Command, Control, Communications, and Computer Systems Directorate had completed a revision of operational policy that will provide increased visibility into commercial satellite communications availability, associated cost analysis, and assessment of the future mix of commercial and military-owned capabilities.

**Director, Defense Information Systems Agency Comments.** The Director, Defense Information Systems Agency concurred with the finding about the lack of an ability to report long-haul communications costs. The Director stated that the Defense Information Technology Contracting Organization is not being used as the exclusive acquisition agent to DoD and can only report on what was acquired through their office. The Director also stated that not all satellite communications lease costs can be determined separately because they are part of an end-to-end service leased from a provider. The Director further stated that the Chairman, Joint Chiefs of Staff Instruction 6250.01, "Satellite Communications," October 20, 1998, makes commercial satellite communications a part of Military satellite communications, and charges the Defense Information Systems Agency, the Joint Staff, and Service secretaries to develop procedures for regular reporting of commercial communications leases.

## Recommendations, Management Comments and Audit Response

**Revised, Redirected, and Added Recommendations.** As a result of management comments, we revised Recommendation A.1. to more appropriately reflect the Office of Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) responsibility to establish policy.

**A.1. We recommend that the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence), establish policies for tracking and accumulating usage and cost data for the Director, Defense Information Systems Agency to monitor and track long-haul telecommunications by type of transmission media access, accumulate contract costs, and determine available total leased commercial satellite bandwidth capacity.**

**Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) Comments.** The Senior Civilian Official, Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence), concurred with comment. He stated that this deficiency was highlighted in Chairman, Joint Chiefs of Staff Instruction 6250.01, "Satellite Communications," October 20, 1998. The instruction tasked the Services, Commanders-in-Chief, and Defense agencies to prepare an annual report to the Joint Staff and Office of Secretary of Defense (Command, Control, Communications, and Intelligence) on commercial satellite communications operational use and associated costs. The Senior Official also stated that his office will work with the Defense Information Systems Agency to ensure that appropriate implementation procedures are developed to improve procedures for tracking and accumulating usage and cost data. The Senior Official further stated that they will also clarify which types of commercial satellite communications contracts require reporting. The Senior Official did not agree that reporting should be required on quality of service contracts that do not specify end-to-end transmission media.

**Audit Response.** The Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) comments were generally responsive. We request the Assistant Secretary provide more specific comments in response to the final report. Those comments should describe actions taken or planned in response to agreed-upon recommendations and provide the completion dates of the actions. We agree that it would not be practical to track the type of transmission media for the leased commercial telecommunications services procured by DoD where end-to-end communications connections are unspecified.

**A.2. We recommend the Vice Chairman, Joint Chiefs of Staff, require the Joint Staff, and the Director, Command, Control, Communications, and Computer Systems to assess the mix of DoD-owned and commercially leased satellite capacities on a periodic basis to support the communications deliberate planning process.**

**Vice Chairman, Joint Staff Comments.** The Vice Chairman, Joint Staff, concurred with the intent of the recommendation. The Vice Chairman agrees that an assessment of DoD-owned and commercial leased satellite communications capacities needs to be conducted periodically. Chairman, Joint

Chiefs of Staff Instruction 6250.01, "Satellite Communications," October 20, 1998, tasks the Defense Information Systems Agency to conduct a mix of media assessments and the U.S. Space Command has been tasked to make an annual assessment of satellite communication capacities to support warfighting requirements. This assessment will provide a valuable document for theater communications planners. The Vice Chairman further stated that the Joint Chiefs of Staff, Director, Command, Control, Communications, and Computers will lead a mix of media assessment in CY 2000, to assess the right mix of commercial and military-owned satellite communications.

**A.3. We recommend that the Director, Defense Information Systems Agency, develop a migration strategy for databases to monitor and document long-haul telecommunications by type of transmission media, assess the accumulative contract costs, and determine available total leased commercial satellite capacity.**

**Director, Defense Information Systems Agency Comments.** The Director, Defense Information Systems Agency, concurred with the recommendation. The Director stated that a migration strategy that will integrate provisioning information between the Defense Information Systems Agency and the Defense Information Technology Contracting Organization is being pursued. The Director also stated that the integration of information from non-Defense Information System Agency database sources will require investigation.

**Audit Response.** The Director, Defense Information Systems Agency comments are partially responsive. We request the Director provide more specific comments in response to the final report. Those comments should describe actions taken or planned in response to agree-upon recommendations and provide the completion dates of the actions.

## Other Management Comments

**Vice Chairman, Joint Staff Comments.** The Vice Chairman, Joint Staff, provided comments on the finding and Recommendations A.1. and A.3.

**Director, Defense Information Systems Agency Comments.** The Director, Defense Information Systems Agency provided comments on Recommendation A.1.

**Audit Response.** We considered the Joint Staff and Defense Information Systems Agency management comments when preparing the final report and made suggested changes where we believed necessary.

# B. Acquisition and Management of International Maritime Satellite Terminals and Service

The total number of DoD-owned INMARSAT terminals and the associated airtime costs could not be determined. This condition occurred because existing DoD communications policies were not correctly applied to the acquisition and management of INMARSAT equipment and airtime services. As a result, the ability of communications managers to effectively oversee the acquisition and management of INMARSAT equipment and airtime services was degraded and economies of scale could not be achieved through combined purchases. Further, communications managers could not effectively plan for integrating the use of INMARSAT and future capabilities into the deliberate planning process.

## INMARSAT History

The INMARSAT is a consortium organization established in 1979 consisting of 79 member nations. The U.S. representative to the consortium is COMSAT of Bethesda, Maryland. Originally, the consortium was formed to provide maritime mobile satellite communications, but over time has become a leading provider of global mobile satellite communications. INMARSAT services include: direct-dial telephone, telex, facsimile, electronic mail, and data transmission services.

The small size and mobility of INMARSAT terminals, combined with the ability to communicate globally, have made the purchase or lease of INMARSAT terminals and airtime a high priority with the warfighting community. Warfighters primarily use INMARSAT to provide communications for military commands that lack tactical communications assets, for search and rescue missions, and for logistical support. Warfighters also use INMARSAT to provide initial communications during a deployment. After the initial deployment, alternative communications are established and used. At the end of a military operation, the primary communications systems are disassembled and warfighters again use INMARSAT to provide final communications capability for the departing troops.

## Long-Haul Connectivity

Personal communications services equipment can provide global point-to-point communications between users. Capabilities such as INMARSAT enables users to call globally between terminals, from a terminal to a terrestrial telephone, and

from a terrestrial telephone to a terminal. Interviews with the Defense Components identified that confusion exists over whether INMARSAT was included in the long-haul telecommunications definition and, therefore, subject to acquisition by DITCO and management by DISA.

Based on the type of missions for which INMARSAT was used, the communications extended beyond the post/base/camp and, therefore, clearly met the definition of long-haul telecommunications.

See Appendix D for a complete discussion of the policy and procedures for acquisition and management of long-haul telecommunications.

## INMARSAT Equipment

The total number of DoD-owned INMARSAT terminals and associated airtime costs could not be determined. The small size and easy mobility of INMARSAT equipment complicates the ability to compile and maintain a valid equipment inventory. Small terminals could be easily transported between locations, carried in luggage, and included in larger communications packages. The terminals became a roving network of assets that was challenging to track.

**Inventory.** The unified commands could not identify a total quantity of INMARSAT terminals for their individual theaters. In addition, Services could not provide a total inventory of INMARSAT terminals purchased by each Service.

Each Military Service office responsible for processing INMARSAT commissioning applications has established a database, or is in the process of creating a database, to accumulate terminal information contained in the commissioning applications. To develop a complete inventory of terminals, military offices surveyed the Service components and documented commissioned terminals that were not in the database. As of December 1997, the Services' databases and DISA identified a total of 2,208 terminals that were accounted for as follows: Army-1,057, Navy-421, Air Force-684 and DISA-46. The Army database also included terminals for other Defense agencies.

**Equipment and Airtime Costs.** The Army, Air Force, and unified commands were unable to provide total costs associated with the purchase of INMARSAT terminals. It is important for DoD to determine if INMARSAT is a cost-effective and efficient means of global communications so that DoD can effectively plan for the future. The Navy identified approximate costs of $12.1 million for 421 terminals. For the 2,208 terminals identified, we estimated the procurement costs to be $53.1 million. We identified total costs of $69.2 million for airtime, and $739 thousand for combined terminal and airtime leases. Table 4 shows the DoD INMARSAT costs incurred through DITCO contracting and non-DITCO contracting for FYs 1992 through 1997, totaling more than $123.1 million.

**Table 4. INMARSAT Terminal and Air Time Costs Fiscal Years 1992 through 1997**

| | DITCO | Non DITCO | Total |
|---|---|---|---|
| Terminals | $ 9,835,282 | $43,310,613 | $ 53,145,895 |
| Air time | 69,196,665 | 50,561 | 69,247,226 |
| Combination Leases | | 738,777 | 738,777 |
| **Total** | **$79,031,947** | **$44,099,951** | **$123,131,898** |

INMARSAT usage has increased dramatically. Records obtained from DITCO showed that the annual DoD leasing of INMARSAT airtime through DITCO increased from $2.2 million in FY 1992 to $15.1 million in FY 1996. For example, during Operation Restore Democracy in Haiti, DoD INMARSAT usage rose over 100,000 minutes in the first two weeks.

## Provisioning of INMARSAT

Existing DoD communications policies defining long-haul telecommunications have not been correctly applied to the acquisition and management of INMARSAT equipment and airtime services. The wide availability of INMARSAT equipment and service providers has made it easy for INMARSAT customers to purchase equipment and airtime directly from commercial vendors, rather than from DISA. Even though DoD guidance clearly states that DISA is to procure and manage long-haul telecommunications, the DoD purchases of INMARSAT equipment and airtime are an example of how the procurement and management process can become very disjointed, and existing DoD policies circumvented.

**INMARSAT Network Connectivity.** Users must obtain an INMARSAT terminal and airtime service to use the INMARSAT satellite network. Prior to connecting to the network, user terminals must be commissioned by COMSAT, the U.S. representative to the INMARSAT consortium. The Services have established central offices to collect, process, and forward applications to COMSAT.

Any network transmission from an INMARSAT terminal must be relayed through an INMARSAT earth station during transmission. For example, a call from a voice terminal is uplinked to an INMARSAT satellite, downlinked to a fixed-site earth station, and then connected to a local public switched network.

**Terminals.** Our review of billing records and interviews with INMARSAT users showed that the unified command J6 staffs, unified command components, the Services, and other DoD organizations, including DISA, have procured INMARSAT terminals both locally through direct purchases from vendors, and through terminal contracts provided by DITCO. Of the 2,208 INMARSAT terminals identified by the audit, 1,867 were purchased outside DITCO and 341 were purchased through DITCO.

DoD customers continued to acquire INMARSAT terminals on their own even though DITCO established three contracts to purchase INMARSAT terminals. For example, some Navy commands and the Navy Media Center have contracted directly with vendors for INMARSAT A (a type of INMARSAT terminal), while the Navy Space and Electronic Warfare Systems Command performed the contracting and the Chief, Naval Operations centrally funded the purchases for INMARSAT B (another type of INMARSAT terminal). Using those processes, the Navy purchased 421 terminals during FYs 1992 through 1997 at a cost of about $12.1 million.

**Airtime.** INMARSAT users have not consistently leased airtime through DITCO. Of the 2,208 user terminals identified, 344 users obtained service outside and the remaining 1,864 users obtained service through DITCO service contracts.

DoD customers continued to acquire INMARSAT airtime on their own even though DITCO established three contracts to lease airtime. For example, the U.S. Central Command obtained service through a direct contract with a vendor. Those scenarios were duplicated at other sites and organizations visited. The uncoordinated terminal purchases and airtime leasing contributed to the inability of the Services and DoD organizations to maintain an accurate terminal inventory, airtime tracking usage, or total calculations of costs expended. Without historical cost data, managers could not effectively plan for future costs and economies of scale could not be realized for combined purchases.

**DITCO Contracts.** The DITCO had six INMARSAT contracts as of August 1997. Three equipment contracts provide terminal types A, B, M, and Aero. Three airtime service contracts provide voice, electronic mail, telex, fax, and data transmission connections. The services could be provided in or outside the continental U.S., in regions of the world where COMSAT has a ground station available. In areas where COMSAT does not have a ground station available, users must access the INMARSAT network through a ground station owned by a member of the consortium in the area.

Nations maintaining membership in the INMARSAT consortium could require users located in their country to access the INMARSAT network through a service provider located in their country. For example, INMARSAT users in Japan must use the Japanese service provider KDD. United States Army, Japan leased service through a DITCO contract with the understanding that they could access the INMARSAT network through the service provider, COMSAT.

However, the DoD users in Japan could not use the COMSAT service because of the Japanese requirement to use KDD. The DITCO headquarters and the DITCO-Pacific field office failed to identify the geographical limitations of the DITCO contracts in the Pacific Theater. With proper planning, the DITCO-Pacific field office could provide guidance to users on how to obtain service in countries that require users to access the network through local providers.

**Requirements Submission.** Customers purchasing INMARSAT terminals outside DITCO commonly justified their decisions by explaining that the DITCO did not have a contract for the specific type of equipment or service that was required. However, when a customer has a terminal or service requirement for which DITCO does not have an existing contract, the terminal or service could still be obtained through DITCO by submitting a telecommunications service request (TSR). DITCO issued contracts for equipment and services based on validated requirements. These requirements are transferred to a TSR and submitted to DITCO. The TSR initiated the action to provide the terminal or service.

**DITCO Cycle Time.** According to the Air Force Space Command and U.S. European Command INMARSAT users, the cycle time required to obtain INMARSAT equipment and service through DITCO was too long. However, in some cases, the customer may not initiate the procurement process in a timely manner. The DITCO provisioning process showed that the maximum time required to obtain an INMARSAT terminal from an existing contract was at most 71 calendar days. Table 5 outlines the INMARSAT terminal process. Although DITCO does not have a formal process in place to meet crisis driven requirements, DITCO personnel reported that terminals could be obtained in less than a week if customers expedited the process by faxing the required information to the appropriate offices.

**Table 5. Time Required to Obtain INMARSAT Terminals From Existing DITCO Contracts**

DITCO receives TSR or purchase request and submits a delivery order to the vendor

(Normally 1 or 2 work days or up to 4 calendar days for weekends)

Vendor receives delivery order and provides terminal serial number to the customer

(Up to 5 work days or 7 calendar days for weekends)

Customer uses the serial number to complete the commissioning process and provides commissioning data to vendor

(Up to 30 calendar days)

Vendor receives commissioning information, configures the terminal, and ships terminal to customer

(Up to 30 calendar days)

Customer receives terminal

After a TSR or purchase request was submitted to the DITCO, airtime authorizations from an existing DITCO service contract took less than a week and normally one day.

**Non-DITCO Contracts.** Several options were available in cases where DITCO did not have existing contracts to meet requirements for equipment. DITCO could still meet a customer's requirement by using other options. For instance, if the General Services Administration had the equipment on its schedule, DITCO could use the schedule on behalf of customers. If the contractor had the equipment in its inventory, customers could receive equipment within 30 days after a validated requirement had been submitted to DITCO. The 30-day time period did not include commissioning of the terminal and applied to open market acquisitions of less than $100,000. For acquisitions in excess of $100,000, the completion of a new indefinite-delivery-indefinite-quantity contract could take between 12 and 18 months.

DITCO had several options for satisfying customer requirements for airtime service not provided on current contracts. If the service was previously contracted and was under $1 million, procurement took approximately 30 days

and implementation approximately 15 days, for a total of 45 days. If a new indefinite-delivery-indefinite quantity contract was needed, the time to complete the contract could be between 12 and 18 months.

## Impact on Acquisition

The ability of communications managers to effectively oversee the acquisition and management of INMARSAT equipment and airtime services was degraded and economies of scale could not be achieved through combined purchases because DoD organizations procured INMARSAT terminals and airtime services through multiple contracting mechanisms circumventing DoD telecommunications policy. Further, because of those acquisition practices, DoD communications managers could not:

- effectively plan for future costs associated with planned INMARSAT usage, and
- effectively control the future purchases of INMARSAT resources.

**Impact on Planning.** The Capstone Requirements Document showed that the unified commands and other users must be able to plan for the use of SATCOM resources, including commercial, based on the Joint Chiefs of Staff allocation of SATCOM resources. However, because of current acquisition practices, DoD communications managers could not determine the total quantity of commercial satellite resources available through INMARSAT to use as an augmentation capability to MILSATCOM and, therefore, could not effectively plan for integrating the use of INMARSAT and future capabilities into the deliberate planning process.

**Telecommunications Future.** The commercial wireless communications market was expanding, and the evolution of technology has made communications equipment smaller and more mobile while providing connections to greater geographical areas. Personal communications services (INMARSAT is a type of personal communications services) are a broad range of equipment, services, and technologies, which enable people or devices to directly communicate, regardless of their geographical locations. The equipment associated with personal communications services is portable, ranging in size from a piece of luggage down to hand held devices. Examples of personal communications services include the INMARSAT and the mobile satellite service (MSS).

**MSS.** MSS is a future capability that is attracting substantial interest in DoD. MSS is a planned commercial satellite based communications network, which will provide digital voice, data, paging, and fax services to users with handheld terminals. During interviews with INMARSAT users, the general consensus was that MSS will be used to an even greater degree than INMARSAT has been used. The DoD plans to acquire an enhanced MSS capability, which will provide limited protection of user information. Planned funding for MSS for

FY 1996 through 2003 is $165 million. With the growth in the use of personal communications services, the ability to monitor and track associated costs is critical to quantifying available resources, monitoring spending trends, and projecting future costs.

## Conclusion

The evolution of technology has made communications equipment smaller and more mobile providing connections to greater geographical areas. With devices such as INMARSAT and the future MSS, DoD has the opportunity to communicate globally using a commercial SATCOM capability that is highly mobile. Communications managers are faced with the challenge of determining cost-effective commercial satellite communications capabilities to augment existing MILSATCOM systems, so that the combined communications capabilities are adequate to support the nation's two MTW.

However, DoD does not have adequate controls in place over the acquisition of communications resources and the INMARSAT inventory of terminals, airtime services, and associated costs could not be determined. This occurred because DoD organizations procured INMARSAT terminals and airtime services through multiple contracting mechanisms circumventing DoD telecommunications policy. As a result, the ability of DoD communications managers to effectively manage INMARSAT resources was degraded and the economies of scale through combined purchases could not be achieved.

Further, effective management of INMARSAT capabilities, as with overall commercial satellite capabilities, is needed to ensure that the Joint Staff can adequately assess the mix of DoD-owned and commercially leased satellite capacities in support of the MTW and that the SATCOM users can conduct effective planning for the utilization of communications resources during conflict. Enforcement of current DoD long-haul telecommunications policy concerning the acquisition of PCS terminals and airtime services is needed.

## Management Comments on the Finding

**Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) Comments.** The Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) stated that it is correct that DoD does not accurately track total numbers of INMARSAT terminals and costs and this needs to be remedied. The Assistant Secretary also agrees that some DoD organizations have circumvented existing policy, and contracted outside of the Defense Information Technology Contracting Organization for INMARSAT terminals and service. The Assistant Secretary stated that their office, in conjunction with the Defense Information Systems Agency, will ensure that the in-place contracting mechanisms are responsive to the real world needs of the warfighter, thus becoming a more effective and desirable mechanism for obtaining INMARSAT terminals and service.

**Director, Defense Information Systems Agency Comments.** The Director, Defense Information Systems Agency concurred with the finding. The Director stated that a policy initiated and promulgated by OSD would allow the Defense Information Systems Agency to exercise management and oversight over INMARSAT assets.

## Recommendations, Management Comments and Audit Response

**B.1. We recommend that the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence):**

**a. Designate International Maritime Satellite equipment and airtime services used for satellite communications as long-haul telecommunications assets.**

**b. Establish procedures requiring the Defense components to acquire, if appropriate, International Maritime Satellite airtime through the Defense Information Technology Contracting Organization.**

**c. Direct the Defense components to purchase personal communications services equipment through existing Defense Information Technology Contracting Office contractual vehicles.**

**Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) Comments.** The Senior Civilian Official, Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence), partially concurred with the recommendations and stated that his office is reevaluating whether commercial satellite communications should be part of long-haul communications policy or a separate comprehensive satellite communications policy that recognizes the role of satellite communications in long-haul communications as well as its role in tactical support to deployed and mobile forces. He stated that his office and the Defense Information Systems Agency will explore ways to strengthen existing procedures to ensure INMARSAT equipment and service are provided in a timely manner to the warfighter.

Further, the Senior Official concurred with centralized procurement where appropriate. The Office of the Assistant Secretary of Defense, Command, Control, Communications, and Intelligence is in the process of issuing interim policy for centralized procurement of Iridium equipment and services, through the Defense Information Systems Agency. The Senior Official indicated that centralized procurement of other personal communications services would be evaluated on a case by case basis.

**Audit Response.** The Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) comments are partially responsive. We request more specific comments in response to the final report. Those comments should describe actions taken or planned in response to agreed-upon recommendations and provide the completion dates of the actions.

**B.2. We recommend that the Director, Defense Information Systems Agency:**

**a. Establish procedures to acquire information on existing INMARSAT resources and initiate appropriate actions to efficiently manage and provide oversight of these assets.**

**b. Establish procedures to report a current inventory of INMARSAT equipment and airtime services to the Joint Staff.**

**Director, Defense Information Systems Agency Comments.** The Director, Defense Information Systems Agency concurred with the recommendations. The Director stated that to achieve this goal, cooperation of the Services and the Joint Staff would be required as well as additional staffing and resources. In addition, the Director stated that the Defense Information Systems Agency will expand existing capabilities. The Defense Information Technology Contracting Office has a volume subscription plan with discounts associated with cumulative airtime services used. This volume subscription plan utilizes centralized billing and a statement on the total airtime services used is available for all the customers enrolled in this plan.

**Audit Response.** The Director, Defense Information Systems Agency comments are partially responsive. We request the Director provide more specific comments in response to the final report. Those comments should describe actions taken or planned in response to agreed-upon recommendations and provide the completion dates of the actions.

## Other Management Comments

**Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) Comments.** The Senior Civilian Official provided comments on the finding.

**Vice Chairman, Joint Staff Comments.** The Vice Chairman, Joint Staff, provided comments on the finding and recommendation.

**U.S. Central Command Comments.** The Director, Command and Control Communications and Computer Systems stated that the report is biased toward efficiency. The Director also stated that the report did not consider the balance of conditions in the U.S. Central Command area of responsibility and the impact of ineffective commercial applications.

**Audit Response.** We considered the Office of the Assistant Secretary of Defense (Command, Control, Communications and Intelligence), the Joint Staff and the U. S. Central Command comments when preparing the final report and made suggested changes where we believed necessary.

# C. Commercial Satellite Communications Initiative

Although the $1.4 billion Commercial Satellite Communications Initiative (CSCI) contract was successful in providing cost-effective bulk communications, it did not provide technically efficient or cost-effective satellite communications services to support the missions of some warfighters. This condition occurred because DISA did not adequately define user bandwidth capacity, access requirements, or lease periods before awarding the contract. As a result, warfighters were continuing to lease commercial SATCOM through multiple commercial contracting vehicles and not all economies of scale, as intended by Congress, were achieved through the CSCI program.

## Congressional Intent

The Joint Staff's validated satellite communications requirements exceeded the capabilities of existing DoD-owned satellite resources. The Services began uncoordinated contracting for commercial satellite capacity to satisfy their unresourced satellite communications requirements. As a result, Congress directed DISA to initiate the CSCI program to consolidate the procurement of commercial satellite leases. The CSCI program was designed to:

- reduce the long-term cost of providing commercial SATCOM support to all DoD customers while providing prepositioned surge capability to support joint task forces and related missions, and
- introduce new information transfer services to the joint warfighter and mission support elements of the Defense Information Infrastructure and the Defense Information Systems Network.

To implement the CSCI program, DISA negotiated a contract to obtain satellite equipment and services.

## CSCI Contract

The CSCI program requires DISA to develop and maintain contractual vehicles for acquisition of CSCI services by DoD users. DISA contract DCA 200-95-D-0079, July 18, 1995, is an indefinite delivery/indefinite quantity contract for a period of 1 year with 9 option years. The purpose of the contract is to obtain C- and Ku-band satellite transponders and bandwidth management and control services.

**Transponders.** Two transponders, which are radio relay equipment (on board a communications satellite) that receive a signal, amplify it, and send it back to earth; were leased, as required, at contract award. The Government may

acquire a maximum of forty-five transponders throughout the life of the contract. Each transponder may have a capacity of between 9 and 36 T-1s. The additional leases may be made for one or more transponders, but each lease must be at least 1 year in length.

**Bandwidth Management Centers.** The contract also requires the contractor to establish bandwidth management centers. The primary function of the centers is to monitor the leased satellite transponders and to monitor and control authorized terminals. Currently, two centers are operating, one in Clarksburg, Maryland and another in Landstuhl, Germany; and two additional centers are planned for the west coast of the continental U.S. and another in the Pacific theater.

**Transponder Leases.** As of August 25, 1997, 15 transponders had been leased on 14 delivery orders to provide service from 2 to 7 years during the period January 17, 1997 to September 30, 2004. The associated life cycle costs of those leases were $131.9 million. As of July 31, 1997, $43.5 million had been billed and paid on the contract. As of July 5, 1995, the total estimated cost for the 10-year contract if all option years are exercised, and if all 45 transponders are activated, is $1.4 billion.

**Program Success.** The Navy Challenge Athena program uses of the largest number of transponders to date, with five currently operational. Those transponders support the Navy requirement to communicate between shore-based gateway sites and ships at sea. The Defense Airborne Reconnaissance Office has leased or shared the lease of three transponders to meet its requirements in South Korea, Bosnia, and the continental United States. In Bosnia, a CSCI transponder provides the backbone of the communications infrastructure and satellite connection for the Bosnia Command and Control Augmentation; telemedicine; and communications between the east coast of the United States and the Bosnian theater of operations. The Navy also leased three transponders in support of the "TV Direct to Sailors" initiative. Most recently, the Armed Forces Radio and Television Service has leased three transponders. See Appendix F for information on the Bosnian plan.

## Support to Warfighters

The $1.4 billion CSCI program was not providing technically efficient or cost-effective satellite communications services to support the missions of many warfighters. The CSCI program was to provide bandwidth on demand to DoD users, however, the terms of the contract have prohibited effective use by potential users. The terms of the CSCI contract required leasing of a full transponder for a minimum of 1 year. Those two constraints limited program usefulness to only those organizations with the largest permanent bandwidth requirements and do not support the missions of many warfighters.

## Operational Issues

DISA did not adequately define user bandwidth, access requirements, or lease periods before awarding the contract. The exercises and operations that warfighters were expected to accomplish could not always be effectively coordinated to achieve the minimum bandwidth quantities required to access a CSCI transponder. In addition, most exercises and operations were of short duration and did not meet the 1 year lease requirement for a CSCI transponder. Exercises and operations did not always occur in locations where the consolidation of user requirements, to achieve the minimum bandwidth quantities, were possible. Further, according to the contract, the vendor had 120 days to activate a delivery order once it was received from DITCO. The contract authorized DISA, in emergency situations, to lease and activate up to five transponders within 30 days. These timelines required too much time to activate a transponder when a quick response was necessary.

**Bandwidth Requirements.** Warfighter communications requirements were often insufficient to establish bandwidth capacity needs large enough to use a CSCI transponder. The CSCI program, as currently structured, is not easily accessible for the small bandwidth user, who need less than a full transponder of capacity. Some examples of this problem are described below.

- The U.S. Central Command deployment of the Contingency Airborne Reconnaissance Support and Mobile Senior Stretch equipment to Southwest Asia in August 1997 resulted in the activation of the Southwest Asia transponder before a sufficient customer communications requirements base could be established. Those communications requirements only needed to use about half of the available Southwest Asia transponder capacity. This was not a cost-effective use of the transponder.

- The CSCI transponder in Southwest Asia provides intertheater connectivity. The potential exists for CSCI to be used for intratheater connectivity. However, because current communications requirements did not require an entire transponder, the CSCI was not be efficiently used for Southwest Asia intratheater connectivity.

- The Air Force Space Command did not use a CSCI transponder because most of their communications requirements were for T-1 quantities of bandwidth. The command could not efficiently use an entire transponder.

- The U.S. Special Operations Command uses its own communications network known as the SCAMPI (not an acronym). However, the CSCI could not be used to provide connections for the SCAMPI network because the command did not have communications requirements of sufficient bandwidth to access a full transponder.

**Technical Operational Needs.** The CSCI transponders identified in the current forecast summary may not have a footprint sufficient to cover all portions of the world. The current U.S. European Command transponder footprints only cover about one-third of its operational theater. Also, the U.S. European Command is concerned that a planned transponder pointed towards

central Europe would still only cover about one-third of its operational theater. Most of Africa is not and will not be serviced by transponders. Service to critical operational areas may not be available. Although most of Africa does not have Ku band coverage, C-Band coverage is commercially available.

Further, in the U.S. European Command, five C-band satellite links providing connections between the eastern continental U.S. and Europe had to be leased outside of the CSCI contract, because customers needed C-band connections that the CSCI program could not provide. Four of those links, that were T-1 capacity, were provided by a different vendor. The DoD incurred charges of $14.48 million for those four links for 5 years. In comparison, a CSCI transponder that could potentially support up to twelve T-1s could be more cost-effectively leased for $9.17 million for 5 years. However, the CSCI does not plan any future transponders, that will provide primarily C-band connectivity between the eastern continental U.S. and Europe, to solve this technical problem.

**Available Funds.** Warfighters, who are accustomed to having communications provided for the support of their missions through military satellite communications, may not have adequate funds programmed to pay for the service provided by CSCI. Access to CSCI requires an expenditure of funds which is prohibitive and not cost-effective to commands with bandwidth requirements less than the CSCI contract minimum (one transponder). Thus, the cost of using full transponders results in warfighters avoiding the CSCI contract and seeking other communications sources. However, other communications sources may also not be cost-effective and the warfighters' options become limited and inflexible.

**Time to Obtain Service.** In addition to a prohibitive dollar cost, the process for obtaining CSCI access requires an investment in time and effort that some commands cannot afford. For example, during a recent deployment, DISA was not able to provide the U.S.S. Enterprise with required access to a CSCI transponder in a timely manner and, therefore, the CSCI program was not used. In another example, the CSCI program cannot meet the short leadtime access needs required by U.S. Special Operations Command and is not used.

**Host-Nation Support.** Host-nation support is not always readily available. A problem in Southwest Asia is that Saudi Arabia has not granted landing rights allowing CSCI signal radiation and reception in-country. DISA contracted for a CSCI transponder to be used in Southwest Asia at the request of U.S. Central Command. The Air Force leased a terminal in December 1996, to use that transponder, for $1.4 million annually, before host nation approval for landing rights was negotiated. Saudi Arabia did not approve those landing rights. As a result, the $1.4 million terminal was not used and at the end of the year's lease, the Air Force terminated the contracted transponder.

**Terminals.** Terminals are not always available to access the bandwidth. There is no central contract to provide terminals for access to CSCI bandwidth, nor is there a joint effort underway to develop, field, and manage the tri-band terminals, which will access the CSCI bandwidth in the future. This lack of availability complicates the warfighter's ability to use the CSCI. The CSCI program has been successful in cost-effectively buying bulk transponder bandwidth for large bandwidth users.

## Summary

The CSCI program has been successful in providing cost-effective bulk transponder bandwidth for large bandwidth customers. However, the CSCI program was not providing technically efficient or cost-effective satellite communications services to support the missions of many warfighters. For many potential small bandwidth users, the CSCI program service contract was not user friendly. Overall, it did not meet the exercise and operational requirements of the warfighter. The terms of the CSCI transponder contract, a 1 year minimum lease, a full transponder minimum lease, and the lead time required to obtain service; limits its cost-effectiveness to only those warfighters with the largest bandwidth and longest term requirements. Other problems have impeded the use of the CSCI program including:

- the lack of a C-band connection to Europe,
- service that is not available to all areas of the world,
- a cost that is prohibitive to warfighters planning for exercises and short term operations,
- required host nation approval of landing rights that must be negotiated and is not always readily given, and
- terminals that are not always available for the warfighter to access the bandwidth because of the lack of a contract to provide the tri-band terminals required.

## Management Comments on the Finding and Audit Response

**Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) Comments.** The Senior Civilian Official, Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) partially concurred with the finding. He stated that the finding was accurate. However, he stated that it fails to acknowledge the contradiction between efficiency (bundling users for economies of scale) and effectiveness (responding promptly to individual users requiring small amounts of bandwidth). The Senior Official further stated that a balanced approach must be taken that achieves economies of scale in the deliberate planning process, while being responsive to urgent requests for support.

**Vice Chairman, Joint Staff Comments.** The Joint Staff concurred in comment and suggested the Inspector General review the CSCI program costs with the program office.

**Director, Defense Information Systems Agency Comments.** The Director, Defense Information Systems Agency, generally concurred with the finding.

**Audit Response.** We agree with the Office of the Assistant Secretary, (Command, Control, Communications, and Intelligence) that a balanced approach is necessary to both achieve economies of scale and to be responsive to urgent requests.

We considered the Joint Staff and Defense Information Systems Agency management comments when preparing the final report and made suggested changes where we believed necessary.

## Recommendations, Management Comments and Audit Response

**C.1. We recommend that the Director, Defense Information Systems Agency, solicit a new contractual vehicle that will provide:**

**a. Partial as well as full transponders for any period of time as users may require.**

**b. Timely leasing completion.**

**c. C-band connection to Europe.**

**d. Service available to all areas of the world that is cost-effective to warfighters planning for exercises and short term operations.**

**C.2. Establish a program and contractual vehicle for obtaining sufficient quantities of technically adequate terminals, to access available bandwidth provided by the Commercial Satellite Communications Initiative contract, and any follow-on contracts, for DoD users.**

**Director, Defense Information Systems Agency Comments.** The Director, Defense Information Systems Agency concurred with the recommendations. The Director stated that several new initiatives to provide flexibility in meeting varying customer needs are being pursued. The Director further stated that the Defense Systems Information Agency will continue to provision terminal requirements and in support of the Defense Information Systems Network. A commercial satellite communications terminal program office for the acquisition of terminals will be formed at the Communications and Electronics Command, Fort Monmouth, New Jersey.

**Audit Response.** The Director, Defense Information Systems Agency comments are generally responsive, but we request the Director provide more specific comments in response to the final report. Those comments should describe actions taken or planned in response to agreed-upon recommendations and provide the completion dates of the actions.

## Other Management Comments

**Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) Comments.** The Senior Civilian Official provided comments on the finding.

**Vice Chairman, Joint Staff Comments.** The Vice Chairman, Joint Staff, provided comments on the finding and recommendations.

**U.S. Central Command Comments.** The Director, Command and Control Communications and Computer Systems stated that the report is biased toward efficiency. The Director also stated that the report did not consider the balance of conditions in the U.S. Central Command area of responsibility and the impact of ineffective commercial applications.

**Audit Response.** We considered the Office of the Assistant Secretary of Defense (Command, Control, Communications and Intelligence), the Joint Staff and the U.S. Central Command management comments when preparing the final report and made suggested changes where we believed necessary.

# Appendix A. Audit Process

## Scope

To evaluate DoD communications capabilities to support two MTWs, we evaluated the management, procurement, and usage of commercial satellite systems within the DoD. We performed the audit at the Joint Staff, DISA, and at the unified commands associated with the two MTW scenarios: U.S. Central Command, U.S. European Command, U.S. Pacific Command, and U.S. Space Command.

**DoD-wide Corporate Level Government Performance and Results Act Goals.** In response to the Government Performance and Results Act, the Department of Defense has established 6 DoD-wide corporate level performance objectives and 14 goals for meeting these objectives. This report pertains to achievement of the following objectives and goals:

- **Objective:** Shape the international environment through DoD engagement programs and activities. **Goal:** Enhance coalition warfighting. **(DoD-1.2)**

- **Objective:** Shape the international environment and respond to the full spectrum of crises by providing appropriately sized, positioned, and mobile forces. **Goal:** Support U.S. regional security objectives **(DoD 2.1)** and fight and win two nearly simultaneous major theater wars. **(DoD-2.4)**

- **Objective**: Prepare now for an uncertain future. **Goal:** Pursue a focused modernization effort that maintains U.S. qualitative superiority in key warfighting capabilities. **(DoD-3.)**

- **Objective:** Maintain highly ready joint forces to perform the full spectrum of military activities. **Goal:** Maintain high military personnel and unit readiness. **(DoD-5.1)**

**General Accounting Office High-Risk Area.** The General Accounting Office has identified several high-risk areas in DoD. This report provides coverage of the information management and technology high-risk area.

## Methodology

In evaluating DoD communications capabilities available to support two MTWs, we:

- conducted interviews with users and managers at all organizations visited and contacted;

- reviewed and analyzed documentation, dated from October 1991 through February 1998, concerning leased commercial satellite communications bandwidth capacity and the associated costs; including INMARSAT, CSCI, and the Bosnia Commercialization Plan;

- reviewed the process for obtaining leased commercial satellite communications bandwidth capacity;

- reviewed and analyzed databases containing leased commercial satellite communications bandwidth capacity information and associated costs;

- reviewed contracts for provision and usage of leased commercial satellite communications bandwidth capacity; and

- assessed the effectiveness of the implementation of the U.S. Central Command, U.S. European Command, U.S. Pacific Command, U.S. Space Command, U.S. Forces Korea, U.S. Forces Japan, DISA and the DITCO internal management control programs.

**Use of Computer-Processed Data.** The audit relied on computer-processed data from the Contractual On-Line Procurement System, the Financial Accounting and Budget Systems, and the WWOLSR for information and to develop our conclusions. For the first two systems, we did not assess the reliability of the information because the data from systems were not a basis for our conclusions or findings. We did assess the reliability of the information in the WWOLSR on the basis of completeness and determined that the WWOLSR does not contain all necessary long-haul telecommunications data. We used our assessment to form the basis of some of our conclusions. We did not find errors that would preclude use of the computer-processed data to meet the audit objectives or that would change the conclusions in the report.

**Audit Type, Dates, and Standards.** We performed this economy and efficiency audit from June 1997 through February 1998. The audit was performed in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD.

**Contacts During the Audit.** We visited or contacted individuals or organizations within the DoD and other government and non-government agencies. Further details are available on request.

## Management Control Program

DoD Directive 5010.38, "Management Control (MC) Program," August 26, 1996, 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 the Review of the Management Control Program.** We reviewed the adequacy of the management controls related to the communications capability within the DoD to support two MTWs with overlapping time frames. Specifically, we reviewed the Joint Staff, U.S. Central Command, U.S.

European Command, U.S. Pacific Command, U.S. Space Command, U.S. Forces Korea, U.S. Forces Japan, DISA, and DITCO management control programs as they applied to the overall audit objective.

**Adequacy of Management Controls.** We identified a material management control weakness for the ASD(C3I), and the Director, Defense Information Systems Agency as defined by DoD Directive 5010.38. The DoD management controls for leased commercial satellite communications were not adequate to determine the total leased bandwidth capacity available or being used, or the total costs associated with that capacity. Also, management controls had not been implemented to monitor the inventory of personal communications services and their associated costs within the DoD. Recommendations A.1. and A.3., directed to the ASD(C3I) and the Director, Defense Information Systems Agency, respectively, if implemented, will improve the management and oversight of long-haul satellite communications. Recommendation A.2., directed to the Vice Chairman, Joint Chiefs of Staff, if implemented, will improve the communications deliberate planning process. Recommendation B.1., directed to the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) and Recommendation B.2., directed to the Vice Chairman, Joint Chiefs of Staff will provide communications policies for the acquisition and management of personal communications services equipment and airtime usage. A copy of the report will be provided to the senior official responsible for management controls in the Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) and the Defense Information Systems Agency.

**Adequacy of Management's Self-Evaluation.** In the FY 1997 and FY 1998 Annual Statements of Assurance, the Director, Defense Information Systems Agency and the Department of Defense did not identify the material management control weakness identified by the audit.

## Summary of Prior Coverage

The Office of the Inspector General, DoD, issued three reports in the last 5 years that discussed the planning and management for telecommunications resources involved in the two MTWs scenario.

Inspector General, DoD, Report No. 99-009, "Coordination of Electromagnetic Frequency Spectrum and International Telecommunications Agreements," October 9, 1998

Inspector General, DoD, Report No. 98-009, "Demand Assigned Multiple Access Terminals," October 14, 1997

Inspector General, DoD, Report No. 97-187, "Communications Capability within the DoD to Support Two Major Regional Conflicts Nearly Simultaneously," July 14, 1997

# Appendix B. Glossary

**C-band.** A frequency band between 4 and 6 gigahertz used in satellite communications.

**Capstone Requirements Document.** This document describes the space-based portion of the total DoD communications requirement that is referred to as Military Satellite Communications.

**Challenge Athena.** A Navy communications system that is a combination of military and civilian communication systems providing two-way communications, live video, and data communications with ships at sea.

**Joint Requirements Oversight Council.** This organization assesses mission needs, validates and prioritizes requirements, and makes recommendations on the best placement of dollars and resources.

**Ku-band.** A frequency band between 12 and 14 gigahertz used in satellite communications.

**Long-Haul Communications.** All general-purpose and special-purpose long-haul facilities and services (including terminal equipment and local circuitry supporting the long-haul service) used to support the electromagnetic and or optical, dissemination, transmission, or reception of information via voice, data, video, integrated telecommunications, wire, or radio to or from the post, camp, base, or station and or main distribution frame (except for trunk lines to the first serving commercial central office for local communications services).

**Management of Network Income and Expense Services.** A DITCO system being developed that will integrate customer orders, inventory, and billing processes and information.

**Quadrennial Defense Review.** A collaborative effort involving the Office of the Secretary of Defense, Joint Staff, Services, and unified commands. It is a comprehensive assessment of the nation's defense requirements, based on an analysis of the threats, risks, and opportunities for U.S. national security. The QDR reviewed all aspects of the U.S. defense strategy and program, including force structure, infrastructure, readiness, intelligence, modernization, and people.

**SCAMPI (not an Acronym).** A U.S. Special Operations Command closed community communications system for the transmission of voice, data, imagery, and facsimile.

**Senior Warfighters Forum IV.** A group comprised of flag-level (generals, admirals, and equivalent civilians) personnel that was established to examine options for the "right mix" of satellite communications services and systems that will perform the best job of meeting the requirements set forth in the Capstone Requirements Document but staying within the Joint Requirements Oversight Council mandated cost constraints.

**T-1.** A transmission link with a capacity of 1.544 megabits per second. The T-1 is a standard for digital transmission in the U.S., Canada, Hong Kong, and Japan.

**Telecommunications Service Request.** A valid, approved, and funded telecommunications requirement submitted to DISA or DISA organizations for fulfillment.

**Transponder-radio Relay.** Equipment on board a communications satellite that receives amplifies, and sends signals back to earth.

# Appendix C. Policy and Procedures

The DoD is increasing its reliance on leased commercial satellite communications for general support to forces worldwide. The ASD(C3I) memorandum "Policy for the Use of Commercial Satellite Communications (SATCOM)," November 8, 1993, encourages all DoD agencies to use commercial SATCOM as an augmentation to MILSATCOM by stating:

> To the extent operationally and fiscally practicable, the Department of Defense will augment its military SATCOM capability with both domestic and international commercial services. The strategy employed in leasing commercial satellite service must ensure that the day-to-day operational requirements are met and that a surge capability is available to support time sensitive, worldwide Joint Task Force contingency operations requirements.

Communications support provided by leased commercial satellite systems includes communications to and from fixed bases, airborne, shipborne, and land mobile platforms.

**DoD Guidance.** The Secretary of Defense through DoD Directive 4640.13, "Management of Base and Long-Haul Telecommunications Equipment and Services," December 5, 1991, assigns the ASD(C3I) the responsibility for establishing policy guidelines and for providing effective, efficient, and economical use of base and long-haul telecommunications equipment and services. DoD Directive 4640.13 defines long-haul communications services as:

> "All general purpose and special purpose long-distance facilities and services (including terminal equipment and local circuitry supporting the long-haul service) used to support the electromagnetic and or optical, dissemination, transmission, or reception of information via voice, data, video, integrated telecommunications, wire, or radio to or from the post, camp, base, or station and or main distribution frame (except for trunk lines to the first-serving commercial central office for local communications services)."

The ASD(C3I) provides guidance that specifically requires the DISA to inventory long-haul telecommunications equipment and services in DoD Instruction 4640.14, "Base and Long-Haul Telecommunications Equipment and Services," December 6, 1991, which requires the heads of DoD components to:

> "Submit all required [long-haul] information, in accordance with standards and procedures to be developed by the DISA, for entry into the central data base...and maintain the accuracy of the data base information to within 30 days of service or equipment changes."

In DoD Directive 5105.19, "DISA," June 25, 1991, the Secretary of Defense assigns to the DISA the responsibility to:

> "Acquire commercial communications services (e. g., long-haul telecommunications circuits, facilities, networks, and associated equipment) for the Department of Defense and other Federal Agencies, as directed: initiate and manage actions relating to regulatory and tariff matters, including rates for these commercial communications services; manage and maintain the Communications Services Industrial Fund."

**DISA Guidance.** The DISA assigns the responsibility for procuring long-haul telecommunications to DITCO in "DISA DITCO Circular 350-135-1," February 12, 1996. The DITCO is responsible for acquiring, accounting for, and paying for long-haul communications required by Services and other U.S. Government agencies.

# Appendix D. Telecommunications Inventory and Procurement Process

**Defense Communications System.** The Defense Communications System is a worldwide composite of DoD-owned and leased telecommunications subsystems and networks composed of facilities, personnel, services, and equipment under the management and operational direction of DISA. The Defense Communications System provides long-haul, common-user or backbone (general-purpose), and dedicated or point-to-point (special purpose) telecommunications services for the DoD and other Government organizations. The leased services consist of general-purpose networks, such as, the Defense information systems network; the Federal telephone system 2000; and special purpose circuits, trunks, and networks. The Defense Communications System does not include mobile or transportable communications facilities and assets organic to military forces; tactical communications; base communications (communications within the confines of a post, camp, base, and station, including local interconnect trunks to the first commercial central office providing service in the local area); or on-site facilities associated with or integral to a weapon system, unless specifically designated as components of the Defense Communications System.

**WWOLSR.** The Defense Information Systems Service Center maintains the WWOLSR data base inventory of the Defense Communications System circuits and trunks to reflect TSRs and Telecommunications Service Orders. The WWOLSR contains specific engineering, operational, and management data to support the circuit and trunk allocation and transmission engineering functions performed for the Defense Information Infrastructure telecommunication services. The WWOLSR provides a centralized repository for tracking and managing long-haul telecommunications. That database is used to perform circuit engineering and allocation; daily monitoring of communications networks; network management and planning; monitoring and tracking of telecommunications requirements; and processing, tracking, and performance trends.

**DITCO Databases.** The contractual procurement system is an on-line application used by DITCO to manage, establish, change, or discontinue a specific service and to provide a detailed record of pertinent contractual data to that service. The finance database system is an on-line application used by DITCO to manage and track the financial aspects associated with telecommunication circuits, equipment, and services leased from various carriers and vendors on behalf of the Government.

**Organizations Involved in the Procurement Process.** Organizations such as the headquarters of the Services and Defense agencies, major commands, communications management offices, and installation-level organizations determine requirements for telecommunications services. The DISA operates the Communications Information Services Activity to procure authorized commercial communications services, facilities, and equipment for the DoD and other Government agencies. This procurement function is carried out by DITCO, which is the operating arm of the Communications Information

Services Activity. DITCO issues communications service authorizations, as part of the procurement process, to obtain telecommunications services.

**Procurement Process.** Communications service authorizations are orders for service contracts normally placed against basic ordering agreements, established by the DITCO, with various communications vendors. Communications service authorizations are authorized by the Defense Information Systems Network Service Center through telecommunications service orders. A telecommunications service order is based on a TSR that is submitted by the DISA operated Defense Certification Office on behalf of a DoD component. Each telecommunication service request is submitted by communications manager or user official (such as a local commander, a major command's communications manager, or a network's communications manager) the responsible telecommunication certification office. To connect new service or to reconfigure, reroute, or disconnect existing service, a communications manager or an official from the user organization must prepare a service request.

# Appendix E. Bosnia Commercialization Plan

The 5th Signal Command, U.S. Army Europe, is paying $5.3 million, through contract leasing, for the full cost of communications equipment to support the Bosnia Commercialization Plan, but now is considering the purchase of the equipment. However, the existing contract does not have the option to purchase the equipment at the conclusion of the lease term. This occurred because DITCO-Europe did not assess and identify the most cost-effective contractual vehicle for obtaining the equipment and services.

DITCO-Europe did not assess and identify the most cost-effective contractual vehicle for obtaining the equipment and services. DITCO-Europe prepared a work statement that required the contractor to include the monthly flat rate equipment costs. However, DITCO-Europe did not provide a corresponding option to buy the equipment at a purchase price equal to the contractor's uncapitalized cost. Although the contract was for service, the work statement clearly identifies that equipment would be necessary to provide the service, and DITCO-Europe should have included a buy-out option for that equipment, or a more flexible contractual vehicle.

The 5th Signal Command will have paid $5.25 million for the equipment (monthly flat rate). If the 5th Signal Command accepts Sprint's buy-out offer, it will pay an additional $5 million, for a total of $10.25 million for communications equipment. Had DITCO-Europe included a purchase option, for the contractor's uncapitalized cost, the 5th Signal Command may have paid less than $5.25 million.

The 5th Signal Command did not submit a requirement to provide for a buy-out option of telecommunications equipment prior to conclusion of a commercial contract with Sprint. When the 5th Signal Command determined that a buy-out may be useful, DITCO-Europe had already negotiated the price for service without anticipation of a buy-out of the capitalized equipment. DITCO-Europe did not assess and identify the most cost-effective contractual vehicle for obtaining the equipment and services. If the equipment is purchased now, the 5th Signal Command may have to effectively pay an additional $3 million for the capitalized equipment.

Whether the equipment is purchased or not, the 5th Signal Command will have paid for the equipment and lost the opportunity to purchase the equipment at a reasonable price.

## Other Management Comments

**Vice Chairman, Joint Staff Comments.** The Joint Staff provided comments on the Bosnia Commercialization Appendix of the report. The Joint Staff stated that this example demonstrates a fundamental misunderstanding of intent and that to judge now that the contract was short sighted is to look at the objective out of context.

**Audit Response.** We agree that when the contract was let, that the assumption was that the United States would withdraw from Bosnia within a year, however, good business practices dictate consideration of all potential outcomes. We believe this situation serves as an example for future deployments in lessor regional conflict scenarios.

# Appendix F. 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)
Under Secretary of Defense (Policy)
  Assistant Secretary of Defense (International Security Affairs)
Assistant Secretary of Defense (Command, Control, Communications and Intelligence)
Assistant Secretary of Defense (Public Affairs)

## Department of the Army

Chief Information Officer, Department of the Army
Auditor General, Department of the Army

## Department of the Navy

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

## Department of the Air Force

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

## Other Defense Organizations

Director, Defense Contract Audit Agency
Director, Defense Information Systems 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
General Accounting Office
  National Security and International Affairs Division
    Technical Information Center

## Congressional Committees and Subcommittees, Chairman and Ranking Minority Member

Senate Committee on Appropriations
Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on Defense, Committee on Appropriations
House Committee on Armed Services
House Committee on Government Reform
House Subcommittee on Government Management, Information, and Technology, Committee on Government Reform
House Subcommittee on National Security, Veterans Affairs, and International Relations, Committee on Government Reform

# Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) Comments

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
6000 DEFENSE PENTAGON
WASHINGTON, DC 20301-6000

COMMAND, CONTROL, COMMUNICATIONS, AND INTELLIGENCE

December 16, 1998

MEMORANDUM FOR INSPECTOR GENERAL OF THE DEPARTMENT OF DEFENSE

SUBJECT: Audit Report on Commercial Satellite Leased Capacity (Project No. 6RD-0056.03)

We have reviewed the draft report and partially concur with the findings as accurate statements of current problems. Our office, in conjunction with the Joint Staff, has already taken action to provide increased visibility into DoD usage of commercial satellite communications and associated costs and to evolve the Commercial Satellite Communications Initiative to provide more end-to-end SatCom services that are responsive to the needs of the warfighter.

We will take under advisement the recommendations to expand the definition of long-haul communications to include Inmarsat and other Personal Communications Systems (e.g. hand-held pagers, cell phones and satellite services). Given that DoD use of SatCom services has expanded well beyond the historical long-haul role and has become an integral component of our mobile, deployed warfighters, it may be more appropriate to develop a SatCom policy that recognizes both its role in long-haul as well as tactical communications. We also agree with the intent of your recommendations to procure commercial SatCom centrally to gain economies of scale and will do this to the extent practical. However, the efficiencies of centralized management must be balanced against the needs of warfighters for flexible, adaptable and responsive capabilities. We will evaluate emerging services on a case-by-case basis with the intent of designating a lead agency or Service for procuring capabilities, much as we do with our military satellite communications capabilities today.

My point of contact for this action is Lt Col Ed Alexander, Staff Assistant for Satellite Communications, at (703) 607-0284.

Arthur L. Money
Senior Civilian Official

Attachment:
As stated

cc:
Vice Chairman, JCS
Director, DISA

OASD C3I Comments
DoD IG Audit Report on Commercial Satellite Leased Capacity
(Project No. 6RD-0056.03)

**DoD IG Finding A - Commercial SatCom Capability and Costs.** DoD cannot determine the total leased commercial satellite communications bandwidth capacity, the total costs associated with that capacity, the type of transmission media used for long-haul telecommunications services, or the total capacity available to supplement military satellite communications and the two MTW scenarios.

**OASD/C3I Comments:** Partially concur. It is true that the DoD does not accurately track total leased commercial SatCom capacity and costs, and this needs to be remedied. However, the report does not distinguish between commercial telecommunications services and satellite transponder leases. In the first, DoD buys assured communications and quality of service, and the communications media (SatCom, fiber, etc.) is not specified or known. Specific end-to-end communications connections may be transmitted over satellite or terrestrial paths, or some combination, as automatically selected by software, depending on traffic loading or similar factors. In this situation, there is no practical way or need to track which communications media were used, and attempting to correct this would incur costs out of proportion to the benefits.

**Recommendations for Finding A:**

**DoD IG Recommendation A1:** We recommend that the Assistant Secretary of Defense (C3I) establish procedures for the Director, Defense Information Systems Agency to monitor and track long-haul telecommunications by type of transmission media access, accumulate contract costs, and determine available total leased commercial satellite bandwidth capacity.

**OASD/C3I Comments:** Concur with comment. This deficiency was highlighted in the recent SatCom reassessment process co-chaired by OASD/C3I and Joint Staff/J6. Policy improvements were codified in CJCI 6250.01, "Satellite Communications", dated 20 October 1998, which tasked the Services, CINCs and Agencies to prepare an annual report to the Joint Staff and C3I on commercial SatCom operational use and associated costs. OASD/C3I will work with DISA to improve procedures for tracking and accumulating usage and cost data. We will also clarify which types of commercial SatCom contracts require reporting. However, we do not agree that reporting will be required on quality of service contracts which do not specify media. In those cases, quality of service is the measure of merit, not transmission media.

**DoD IG Recommendation A2:** We recommend the Vice Chairman, Joint Chiefs of Staff, require the Joint Staff, and the Director, Command, Control, Communications and Computer Systems to assess the mix of DoD-owned and commercially leased satellite capacities on a periodic basis to support the communications deliberate planning process.

**OASD/C3I Comments: None.**

**DoD IG Recommendation A3:** We recommend that Director, Defense Information Systems agency develop a migration strategy for databases to monitor and document long-haul

telecommunications by type of transmission media, assess the accumulative contract costs, and determine available total leased commercial satellite capacity.

**OASD/C3I Comments: Concur**

**DOD IG Finding B – Acquisition and Management of International Maritime Satellite Terminals and Service.** The total number of DoD-owned INMARSAT terminals and the associated airtime costs cannot be determined.

**OASD/C3I Comments:** It is accurate that the DoD doesn't accurately track total numbers of Inmarsat terminals and costs and this needs to be remedied. Additionally, it is an accurate finding that some DoD organizations have circumvented existing telecommunications policy by contracting for Inmarsat outside the Defense Information Technology Contracting Organization (DITCO) channels. C3I, in conjunction with DISA, will ensure that the in-place contracting mechanisms are responsive to the real world needs of the warfighter thus becoming a more effective and desirable mechanism for obtaining Inmarsat terminals and services.

**Recommendations for Finding B:**

**DoD IG Recommendation B1:** We recommend that the Assistant Secretary of Defense (Command, Control, Communications and Intelligence): (a) Designate Inmarsat equipment and airtime services used for satellite communications as long-haul telecommunications assets; (b) Establish procedures requiring the Defense components to acquire, if appropriate, Inmarsat airtime through the Defense Information Technology Contracting Organization (DITCO); and (c) Direct the Defense components to purchase personal communications services equipment through existing DITCO contractual vehicles.

**OASD/C3I Comments:** Partially concur. The recent explosion in commercial SatCom, especially mobile services, and the dramatic increase in SatCom demand by warfighters has led to significantly increased integration of commercial SatCom services into our warfighting strategy. Given this, we are reevaluating whether commercial SatCom should be part of long-haul communications policy or a separate comprehensive SatCom policy that recognizes the role of SatCom in long haul communications as well as its role in tactical support to deployed and mobile forces. Inmarsat and other Personal Communications Systems (PCS) (i.e., pagers, cell phones and SatCom) are often the first means available in the initial stages of a deployment and designating them as long-haul communications could inhibit the warfighters ability to deploy quickly. C3I, in conjunction with DISA, will explore ways to strengthen the existing procedures to ensure Inmarsat equipment and services are provided in a responsive and timely manner to support the needs of the warfighter.

We concur with the concept of centralized acquisition to achieve economies of scale and bulk discounts where appropriate. With respect to the centralized procurement of personal communications services, C3I is already in the process of issuing an interim policy for centralized procurement of Iridium handsets and services by DISA. We intend to evaluate on a case by case basis whether centralized procurement of other personal communications services (e.g. pagers) is required or desired. For those systems that it is appropriate, the advantages of centralized procurement (bulk discounts, cost tracking) may also be obtained by having the central procurement

authority reside with a "lead Service" that has the most "at stake" in a system, much like what is done today for DoD SatCom terminal programs. Any new policy on central procurement, whether provided by DISA or a lead Service, also needs to address the flexibility required for CINCs to respond swiftly to time-sensitive operational contingencies without being delayed by routine processes in reach-back organizations. Additionally, such policy must make provisions for ensuring that delivered capability is fully integrated into the maintenance and sustainment structures of the using organizations. Finally, even where local purchases are authorized in contingency operations, it is still possible to collect and report cost data to support the goals of understanding how much the DoD is spending for commercial SatCom.

**DoD IG Recommendation B2**: We recommend the Director, Defense Information Systems Agency: (a) Establish procedures to acquire information on existing Inmarsat resources and initiate appropriate actions to efficiently manage and provide oversight of these assets; and (b) Establish procedures to report a current inventory of Inmarsat equipment and services to the Joint Staff.

**OASD/C3I Comments:** Concur.

**DoD IG Finding C – Commercial Satellite Communications Initiative:** Although the $1.4 billion Commercial Satellite Communications Initiative (CSCI) contract is successful in providing cost-effective bulk communications, it is not providing technically efficient or cost–effective satellite communications services to support the missions of some warfighters.

**OASD/C3I Comments**: Partially concur. The statements in this finding are accurate, however, it fails to acknowledge the fundamental contradiction between efficiency (bundling users for economy of scale) and effectiveness (responding promptly to individual users requiring small bandwidth). It essentially directs DISA to do both things at once. If DISA reacts to each small procurement individually, then it potentially forgoes the opportunity for savings based on economies of scale gained by bundling. A balanced approach must be taken that achieves economies of scale in the deliberate planning process, while being responsive to urgent requests for support.

**Recommendations for Finding C:**

**DoD IG Recommendation C1:** We recommend that the Director, Defense Information Systems Agency, solicit a new contractual vehicle that will provide (a) Partial as well as full transponders for any period of time users may require; (b) Timely leasing completion; (c) C-band connection to Europe; and (d) Service available to all areas of the world that is cost-effective to warfighters planning for exercises and short term operations.

**OASD/C3I Comments:** Concur with all these actions as goals. DISA has already been tasked by the MILSATCOM Senior Steering Group to investigate evolving the CSCI program to a one-stop shop for end-to-end commercial satellite communication services. We will continue to work with DISA to improve the responsiveness of the contracting services for commercial SatCom. However, the IG needs to be aware that industry must be financially motivated to meet these "anywhere, anytime" service goals. Commercial satellites are positioned to meet market demand, e.g. supporting metropolitan areas. Providing "anywhere, anytime" services would potentially require movement of satellites, obtaining reserve capacity, or first right of refusal privileges worldwide, at a substantial – perhaps prohibitive - premium.

# Joint Chiefs of Staff Comments

THE VICE CHAIRMAN OF THE JOINT CHIEFS OF STAFF
WASHINGTON, D C 20318-0001

CM-415-98
9 December 1998

MEMORANDUM FOR THE INSPECTOR GENERAL, DEPARTMENT OF DEFENSE

Subject: Audit Report on Commercial Satellite Leased Capacity

1. The Joint Staff has reviewed the draft audit report[1] and concurs in the findings identified in the document. The Command, Control, Communications, and Computer Systems Directorate has completed a revision of operational policy that will provide increased visibility into commercial satellite communications availability, associated cost analysis, and assessment of the future mix of commercial and military-owned capabilities.

2. There are two major concerns to the report recommendations. First, the recommendation to expand the definition of long-haul communications to include personal communications services (PCS), which are primarily tactical and sustaining base support, is inappropriate. Policy on PCS systems, which include hand held pagers, cell phones, and satellite systems such as INMARSAT and Iridium, should be developed based on the individual system characteristics and use. Secondly, the recommendations focus on centrally procuring equipment, airtime, and services through DISA. It is not clear that centralized procurement of all leased commercial satellite services and personal communciations service equipment will maintain the flexibility, adaptability and responsiveness necessary to react to warfighter needs. The proposed solutions must be based on both economic merit and operational needs in order to ensure that the agility and flexibility these services provide are maintained.

3. Additional comments are provided at the Enclosure. The Joint Staff point of contact for any questions is CAPT Don Slaton, 697-8071.

JOSEPH W. RALSTON
General, USAF

Enclosure

Reference:
1 DOD Draft of a Proposed Audit Report, Project No. 6RD-0056.03, 6 October 1998, "Commercial Satellite Leased Capacity"

Copy to:
ASD (C3I)
Director, DISA

ENCLOSURE

JOINT STAFF COMMENTS ON DRAFT AUDIT REPORT ON COMMERCIAL SATELLITE LEASED CAPACITY

1. DOD IG Finding A - Commercial SATCOM Capability and Costs. DOD cannot determine the total leased commercial satellite communications bandwidth capacity, the total costs associated with that capacity, the type of transmission media used for long-haul telecommunications services, or the total capacity available to supplement military satellite communications and the two MTW scenarios

**Joint Staff Comments: Concur.**

Recommendations for Finding A:

DOD IG A-1 We recommend that the Assistant Secretary of Defense (C3I) establish procedures for the Director, Defense Information Systems Agency to monitor and track long-haul telecommunications by type of transmission media access, accumulate contract costs, and determine available total leased commercial satellite bandwidth capacity.

**Joint Staff Comments. Concur in comment. Suggest the recommendation be changed to reflect ASD (C3I) responsibilities to establish the policy which directs DISA to develop the specific procedures to track long-haul communications. In addition, this deficiency was noted in the recent SATCOM reassessment process and policy improvements were documented in CJCSI 6250.01, "Satellite Communications", dated 20 October 1998. The instruction requires all DOD Service, CINCs and Agencies to report commercial satellite communications costs and usage data to DISA to compile and make available as needed.**

DOD IG A-2. We recommend the Vice Chairman, Joint Chiefs of Staff, require the Joint Staff and the Director, Command, Control, Communications, and Computer Systems to assess the mix of DOD-owned and commercially leased satellite capacities on a periodic basis to support the communications deliberate planning process.

**Joint Staff Comments. Concur in the intent of recommendation. The Joint Staff agrees that an assessment of DOD-owned and commercial leased SATCOM capacities needs to be conducted periodically. CJCSI 6250.01 tasks DISA to conduct a mix of media**

Enclosure

**assessment (including non-SATCOM capabilities) and USSPACECOM to make an annual assessment of SATCOM capacities to support warfighting CINC requirements. These assessments will be a valuable planning document for theater communications planners and programming and budget forecasts. In addition, the J-6 will lead a mix of media assessment in CY 2000, equivalent to the 1997 Senior Warfighters Forum (SWARF), to assess the right mix of commercial and military owned satellite communications.**

DOD IG A-3. We recommend that the Director, Defense Information Systems Agency develop a migration strategy for databases to monitor and document long-haul telecommunications by type of transmission media, assess the accumulative contract costs, and determine available total leased commercial satellite capacity.

**Joint Staff Comments. Concur**

2. DOD IG Finding B - Acquisition and Management of International Maritime Satellite (INMARSAT) Terminals and Service. The total number of DOD-owned INMARSAT terminals and the associated airtime costs could not be determined.

**Joint Staff Comment. Concur in comment. It is accurate that there is not a DOD wide policy that requires tracking of total numbers of INMARSAT terminals and costs. For example, the Department of the Army has instituted a policy outlining the procedural guidance and responsibilities for documenting, purchasing, billing and obtaining approved use of INMARSAT. HQDA maintains a data base on the number of INMARSATs that have been approved for procurement. The established Army policy and procedures can be used as a model to institute a DOD-wide policy.**

DOD IG Recommendations for Finding B.

DOD IG B-1. We recommend that the Assistant Secretary of Defense (C3I):

a. Designate International Maritime Satellite equipment and airtime services used for satellite communications as long-haul telecommunications assets.

b. Establish procedures requiring the Defense components to acquire, if appropriate, International Maritime Satellite airtime through the Defense Information Technology Contracting Organization

c. Direct the Defense components to purchase personal communications services equipment through existing Defense Information Technology Contracting Office contractual vehicles.

**Joint Staff Comments. Nonconcur. The Joint Staff does not agree that INMARSAT equipment (and potentially other Personal Communications Systems (PCS), which include cellular phones, pagers, and other commercial SATCOM systems and airtime, should be considered and designated by policy as a "long-haul" telecommunications assets. INMARSAT and other PCS assets are often the first means available in the initial stages of a deployment. Designating these systems as long-haul communications assets could require creating a management overhead, which may inhibit the warfighter's ability to deploy quickly, and coordinate reception, staging, and onward movement of forces.**

**The Joint Staff is concerned with the premise of the report that centralized acquisition will achieve economies of scale for all leased commercial satellite communications and PCS equipment. In general, decisions to centrally procure commercial services, terminals and airtime should be made by system, (INMARSAT, Iridium etc.) when there are valid economic and operational reasons to centrally procure via DISA. The Services and CINCS require the flexibility to obtain new and emerging commercial satellite services when available and on a best-value basis. It is not clear that centralizing all procurement via DISA is the best methodology to provide better visibility into the economics as well as maintaining the operational benefits (such as ready accessibility) of commercial assets. Services and CINCs should leverage the cost savings possible from DITCO contract vehicles or lead Service contract vehicles when possible and where available. All DOD users should report procurement and leasing costs for commercial SATCOM systems to DISA to facilitate a consolidated expenditure report on DOD commercial SATCOM use. This would be valuable for future architecture and acquisition decisions.**

DOD IG B-2. We recommend that the Director, Defense Information Systems Agency:

a. Establish procedures to acquire information on existing INMARSAT resources and initiate appropriate actions to efficiently manage and provide oversight of these assets.

b. Establish procedures to report a current inventory of INMARSAT equipment and airtime services to the Joint Staff.

**Joint Staff Comments. Concur, this recommendation has been captured in direction contained in CJCSI 6250.01.**

3. DOD IG Finding C - Commercial Satellite Communications Initiative (CSCI). Although the $1.4 billion CSCI contract is successful in providing cost effective bulk communications, it is not providing technically efficient or cost effective satellite communications services to support the missions of some warfighters.

**Joint Staff Comments. Concur in comment. The CSCI program costs are inaccurate and reflect the total contract potential based on an assumption that all 45 transponders were ordered during the first month of the contract (Jul 95) with a 10 year duration. Based on the current contract value of 16 transponders in the third year of the contract and a 10% growth per year the total contract potential is about $600 million. Recommend the IG review this with the DISA CSCI program office.**

DOD IG Recommendations for Finding C.

DOD IG C-1. We recommend that the Director, Defense Information Systems Agency solicit a new contractual vehicle that will provide:

a. Partial as well as full transponders for any period of time as users may require

b. Timely leasing completion

c. C-band connection to Europe

d. Service available to all areas of the world that is cost-effective to warfighters planning for exercises and short term operations

**Joint Staff Comments. Concur in comment. The contract vehicle(s) should offer DOD a "suite" of commercial products that could be tailored to users' specific needs.**

**For recommendation C-1c, C-band is not the only option to provide connectivity between eastern CONUS and Europe. DISA should evaluate cost-effective options for providing this connectivity on available media such as undersea fiber optic cable.**

Final Report Reference

DOD IG C-2. Establish a program and contractual vehicle for obtaining sufficient quantities of technically adequate terminals to access available bandwidth provided by the Commercial Satellite Communications Initiative contract, and any follow-on contracts, for DOD users.

**Joint Staff Comments. Concur in comment. It is important that terminal integration remain the responsibility of the Services as they equip, train and maintain their forces. DISA should work with the Services (as they are currently doing with the Army) to establish the contract vehicles and the Services will ensure the terminal integration, maintenance and sustainment is established.**

OTHER COMMENTS

1. Page 8-10, DOD efforts to determine Commercial SATCOM lease costs.

a. Replace SWARF IV with SWARF. The number indicates the specific meeting held; i.e. SWARF IV specifically refers to the final SWARF meeting held August 1997. Revised Page 6-8

b. Recommend deletion of Table 2 and associated comments such as "The cost data provided to SWARF IV was incomplete and inaccurate." The reason the data was gathered during the SWARF was to provide an estimate in which to project commercial SATCOM spending in the 2003 timeframe and beyond. The data did not need to be precise. The SWARF understood that the number was an estimate and that "scrubbing" the data further to ensure complete accuracy was counterproductive to the intended use of the data.

c. The report concludes that the SWARF estimates on commercial SATCOM costs were inflated. This statement is misleading in that it is impossible to tell whether the totals are inflated due to the missing information. In addition, Table 3 appears to be inaccurate by not including other DOD agencies leasing commercial SATCOM and the terminal costs (which were included in the SWARF report). Recommend deleting Table 3 as there is no value added to the point that DOD does not have a method of tracking SATCOM costs and in fact, the chart may be misleading.

2. Page 9, 4th sentence. Change "The specific amounts...was not extracted" to "The specific amounts...were not extracted". Revised Page 7

| Final Report Reference | |
|---|---|
| Revised Page 25 | 3. Page 23, Finding C., Congressional Intent, 1st bullet. Change "propositioned" to "prepositioned". |
| Revised Page 25 | 4. Page 24, 2nd paragraph. Bandwidth Management Center is currently operational at Landstuhl Satellite Communications Facility. |
| Revised Page 28 | 5. Page 6, 1st paragraph. Although most of Africa does not have Ku band coverage, C-band coverage is commercially available if DISA can develop a business case for it. |
| Page 41 | 6. The example of the Bosnia commercial communications leases demonstrates a fundamental misunderstanding of intent. The report concludes that 5th Signal Command was in error by not including a buy-out clause in the service contract. When the contract was let, the assumption was that the United States would withdraw from Bosnia within a year. To be conservative, renewal options were included in the contract. To judge now that the contract was short sighted is to look at the objective out of context. Also, the intent of the commercial service contract was to free military personnel and assets from the operation. To buy out the equipment would infer an intent to man the equipment with military personnel, which obviates the reason for the commercial service contract, or to let another contract for manning, which could be more inefficient than maintaining the current contract. |

# Defense Information Systems Agency Comments

DEFENSE INFORMATION SYSTEMS AGENCY
701 S. COURTHOUSE ROAD
ARLINGTON, VIRGINIA 22204-2199

December 9, 1998

IN REPLY REFER TO:

Inspector General

MEMORANDUM FOR INSPECTOR GENERAL, DEPARTMENT OF DEFENSE
ATTN: Director, Contract Management

SUBJECT: Draft Audit Report of Commercial Satellite Leased Capacity (Project No. 6RD-0056.03)

Reference: DODIG audit report, subject as above, 6 Oct 98

1. The subject draft report has been reviewed and DISA generally concurs with the findings and recommendations. Detailed management comments are enclosed. The point of contact for this action is Ms. Barbara Nichols, Audit Liaison Team, (703) 607-6607.

FOR THE DIRECTOR:

RICHARD T. RACE
Inspector General

1 enclosure a/s

*Quality Information for a Strong Defense*

**DISA Comments to DODIG draft report, "Commercial Satellite Leased Capacity", project no. 6RD-0056.03, 6 October 1998**

Audit Report Finding A. Commercial Satellite Communications Capability and Costs

• DOD IG Recommendation A.1, page 13

ASD(C3I) establish procedures for Director, DISA to monitor and track long-haul telecommunications by type of transmission media access, accumulate contract costs, and determine available total leased commercial satellite bandwidth capacity.

Comments: Concur with DOD IG finding about the lack of an ability to report long haul communications costs. DITCO is not being used as the exclusive acquisition agent for DOD, and can only report on what was acquired via DITCO. Also, not all satellite communications lease costs can be determined separately because they are a part of an end to end service leased from a provider. CJCSI 6250.01 of 20 Oct 98 makes commercial satellite communications a part of MILSATCOM and charges DISA, Joint Staff, Service secretaries to develop procedures for regular reporting of commercial communications leases.

• DOD IG Recommendation A.3, page 13

Director, DISA develop a migration strategy for databases to monitor and document long-haul telecommunications by type of transmission media, assess the accumulative contract costs, and determine total available leased commercial satellite capacity.

Comment: Concur. A database migration strategy is being pursued by DISA. This initiative will be used as the basis for integrating DISA and DITCO provisioning information. Integrating information from non-DISA database sources will require investigation.

Audit Report Finding B. Acquisition and Management of INMARSAT Terminals and Service.

• DOD IG Recommendation B.1.c, page 22

ASD(C3I)direct the purchase of personal communications services equipment through existing DITCO contractual vehicles

Comment: Concur. The ASD(C3I) Policy for the Use of Commercial Satellite Communications makes DITCO the single utility manager for all acquisitions of commercial SATCOM services. In accordance with this policy, DISA has a first right of refusal to fulfill commercial satellite requirements and a waiver must be justified before an acquisition outside of DISA is executed.

• DOD IG Recommendation B.2a

Director, DISA establish procedures to acquire information on existing INMARSAT resources and initiate appropriate actions to efficiently manage and provide oversight of these assets.

Comment: Concur. Economies of scale can be achieved by better management and oversight. However, Title 10 gives the Services statutory acquisition authority to acquire INMARSAT. A policy initiated and promulgate by OSD would allow DISA to exercise management and oversight. The procedures to implement OSD policy would require the cooperation of the Services and the Joint Staff. Additional DISA staffing and resources would be needed to effectively manage a centralized INMARSAT program.

• DOD IG Recommendation B.2b

Director, DISA establish procedures to report a current inventory of INMARSAT equipment and airtime services to the Joint Staff.

Comments: Concur. With ASD(C3I) direction mandating DITCO as the DOD acquisition agent, DISA will expand existing capabilities. DITCO has a volume subscription plan (VSP), with discounts associated with cumulative airtime services used. The VSP utilizes centralized billing and a statement on the total airtime services used is available for all the customers enrolled in the VSP.

Audit Report Finding C. Commercial Satellite Communications Initiative (CSCI).

• DOD IG Recommendation C.1.

DISA solicit a new contractual vehicle to provide:
a. Partial as well as full transponders for any period of time as users may require,
b. Timely leasing completion
c. C-band connection to Europe

d. Service available to all areas of the world that is cost-effective to warfighters planning for exercises and short term operations.

Comments: Concur with recommendation to pursue a new contractual vehicle, while retaining the current CSCI Managed Transponder Contract (MTC) for large bandwidth users and for users capable of being bundled onto an existing transponder lease. DISA recognizes user's needs for services that cannot be satisfied by the MTC. While other existing contractual vehicles are now available, the CSCI Product Manager is pursuing several new initiatives to provide more flexibility in meeting varying customer needs.

• DOD IG Recommendation C.2

Establish a program and contractual vehicle for obtaining sufficient quantities of technically adequate terminals, to access available bandwidth provided by the Commercial Satellite Communications Initiative contract, and any follow-on contracts, for DOD users

Comments: Concur. The Director and Commander CECOM signed a MOU, which addresses commercial satellite earth terminal acquisitions for the Defense Information System Network (DISN) and CSCI. DISA will continue to provision terminal requirements as part of end-to-end service arrangements and new acquisitions. In support of DISN, a commercial SATCOM terminal program office for acquisition of terminals will be formed at Fort Monmouth.

• DOD IG Report Finding C. Commercial Satellite Communications Initiative Discussion

Comments: Although the DOD IG recommendations are correct, the draft audit report should be modified, as some of the reported background for CSCI is too skewed in reaching the audit report conclusions. Changes are recommended for the final report. The following comments are provided:

1) Executive summary, paragraph 5, page ii and
2) Finding C., Commercial Satellite Communications Initiative, page 23

The CSCI program is reported to be $1.4 billion. This dollar amount is only the <u>total contract potential</u> based on 45 transponders being ordered during the first month (5 July 1995) of the Managed Transponder Contract (MTC) with all transponders having a 10 year duration. Since this is the third year of the

Final Report Reference

contract and 16 transponders are ordered, that total contract potential has changed significantly. Based upon the current contract value and a projected growth of 10% per year, the total contract potential would be under $600M.

Comment:
The statement in the executive summary and Finding C should be clarified and state that CSCI has an estimated value of $1.4 billion over a 10 year time, assuming that all 45 transponders are leased, all Bandwidth Management Centers are implemented and all option years are exercised.

3) Table 2. Commercial Satellite Lease Costs Reported by SWARF IV, page 9

Comment:
This table reports commercial satellite lease expenditures that may be duplicative. Specifically, Challenge Athena could be reported as a Navy cost, as well as in a rolled up CSCI cost. Agree that table is inflated.

4) Bandwidth Management Centers, page 24

Comment: A second Bandwidth Management Center (BMC), located in Landstuhl GE, has been operational since September 1997. The consolidation of commercial transponder control with the DSCS control system is being considered in the longer term beyond 5 years.

Recommendation:
Update this section to say that two Bandwidth Management Centers are operational. No additional BMCs are projected to be needed. Existing BMCs will remotely monitor satellite transponders over the Pacific and CONUS.

Revised Page 25

5) Transponder Leases, page 24
The total contract potential, based on 45 transponders being ordered during the first month of the Managed Transponder Contract (5 July 1995) with all transponders having a 10 year duration, is $1.4 billion. The last sentence of this section states that this potential is "as of July 12, 1996".

Recommendation:
Change the July 12, 1996 date to the contract start date of July 5, 1995 to correspond with the estimated $1.4B potential value or reduce the potential value to reflect the total contract potential, as of the July 12, 1996 date.

Revised Page 26

Final Report Reference

Revised Page 26

6) Program Success, page 24
The next to last sentence should reflect that Navy leased three transponders in support of AFRTS for "TV Direct to Sailors".

7) Support to War-fighters, page 24
The report asserts that CSCI is not realizing full potential in providing technically efficient or cost effective satellite communications services.

Comment: DISA is taking steps to reduce costs and increase cost effectiveness. CSCI offers short-term user service in the form of resale business.

8) Operational Issues, Bandwidth Requirements, First Bullet, page 25
In the discussion of U.S. Central Command's activation of a Southwest Asia transponder, there is an implication about lack of enough of a customer requirement base to warrant activation of that transponder.

Comment:
A set of customer requirements existed and a rational decision was made in relation to the cost per T-1, which was competitive over CSCI. Although all customers weren't ready at transponder activation, sufficient requirements existed with some surge capacity being provided. The comparison of T-1 rates via individual commercial satellite circuit rates (~$300K ARC) versus commercial terrestrial leases (~$1,000K ARC), showed overwhelming support for activating the transponder. The lead-time associated with obtaining, deploying and coordinating host nation approvals delayed service, which resulted in unused capacity.

9) Operational Issues, Bandwidth Requirements, Last Bullet, page 25
The report mentions that SOCOM uses its own communications network, i.e., SCAMPI.

Comment:
SOCOM requirements for SCAMPI have been provided to DISA. The SOCOM requirements will become part of a new contract vehicle, as addressed under recommendation C.1 of the DOD IG report. For the near term, DISA is also looking at partial connections for the SCAMPI network, which may be bundled with an operational CSCI transponder or satisfied by a separate procurement action.

10) Operational Issues, Technical Operational Needs, paragraphs 1 & 2, pages 25 and 26
An issue concerning satellite footprint coverage for EUCOM and C-band connections is mentioned.

Comment:
There are no technical problem with CSCI expanding existing coverage or providing U.S. European Command C-band connectivity between Eastern CONUS and Europe. The MTC may be used to lease additional coverage in response to customer requirements and funding constraints. CSCI leases in response to customer requests.

11)C., Operational Issues, Technical Operational Needs, Available Funds, page 26
The report mentions a customer avoidance of CSCI because of a perception that an entire transponder is necessary.

Comment: DISA is working with potential customers through its Field Offices and has a CSCI home page for users to access. Where cost effective, CSCI bundles user requirements onto a MTC lease. DISA has been successful and bundled customer references are available. A requirements (transponder loading plan) database is maintained. The database tracks requirements per transponder, users are notified about available capacity until sufficient customers are signed up for service.

12)Operational Issues, Technical Operational Needs, Time to Obtain Service, last sentence, page 26
A statement is made that "the CSCI program cannot meet the short lead time access needs required by U.S. Special Operations Command..."

Comment: This is not true. CSCI responded to U.S. Special Operations Command with a support proposal that matched the current service provider in responsiveness.

13)Finding C., Operational Issues, Technical Operational Needs, Terminals, page 26

The report states " There is no central contract to provide terminals for access to CSCI bandwidth, nor is there a joint effort underway to develop, field, and manage the tri-band terminals,..."
Comment: This situation has changed since the report was drafted. CECOM has been named as the agent for all terminal

procurements including C and Ku-band and U.S. Army Space Command has developed a document on the management and control of Ground Mobile Forces Satellite Communications (GMFSC). DISN contracts will continue to be used for leasing terminals as part of an end to end service.

# United States Central Command Comments

Final Report Reference

UNITED STATES CENTRAL COMMAND
7115 SOUTH BOUNDARY BOULEVARD
MACDILL AIR FORCE BASE, FLORIDA 33621-5101

DEC 17 1998

CCJ6

MEMORANDUM FOR OAIG-AUD ATTN: Mr Murrell, INSPECTOR GENERAL, DEPARTMENT OF DEFENSE, 400 ARMY DRIVE (RM 801) ARLINGTON, VA 22202-2884

SUBJECT: IG, DoD AUDIT (6RD-0056.03) Commercial Satellite Leased Capacity

REF: IG, DoD AUDIT (6RD-0056.03) Commercial Satellite Leased Capacity Audit Report DRAFT, Dated: 6 Oct 98

1. We reviewed the reference plan and nonconcur. While there is good reason to emphasize the efficiency aspects of military operations, it cannot always be considered more important than the effectiveness needed for success. The report is biased toward efficiency.

a. Although the data in this report may be factual, without the balance of the conditions in the USCENTCOM AOR (i.e., the expeditionary nature of our operating environment) and the impact of ineffective commercial applications—we cannot agree with the findings as written.

b. ADMINISTRATIVE. Reference page 23, Congressional Intent, subparagraph 1. Change "propositioned" to "prepositioned". Rationale: Accuracy.

Revised Page 25

2. Point of contact is Lt Col Ingram, CCJ6, cmcl: (813) 828-6412/6413, DSN: 968-6412, email: ingramjb@centcom.mil.

for J. L. Culbert COL DJ6
John W. Meincke
Brigadier General, USAF
Director, Command and Control,
Communications and Computer Systems

# Audit Team Members

Paul J. Granetto
Richard B. Jolliffe
Robert M. Murrell
Nancee K. Needham
Kenneth Feldman
Lieutenant Colonel Jesse J. Citizen
Laura K. Todak
Jonathan R. Witter
Megan A. McCarl
Elizabeth Ramos