

**A**udit



**R**eport

COMMUNICATIONS SYSTEMS YEAR 2000  
END-TO-END TESTS

Report No. D-2000-066

December 23, 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](http://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](mailto: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**

CECOM	Communications and Electronics Command
CINC	Commander in Chief
DISA	Defense Information Systems Agency
DISC4	Director, U.S. Army Information Systems Command, Control, Communication and Computers
GPS	Global Positioning Satellite
JUSE	Joint User Switch Exercise
OPEVAL	Operational and Evaluation
Y2K	Year 2000



INSPECTOR GENERAL  
DEPARTMENT OF DEFENSE  
400 ARMY NAVY DRIVE  
ARLINGTON, VIRGINIA 22202-2884

December 23, 1999

MEMORANDUM FOR ASSISTANT SECRETARY OF DEFENSE (COMMAND,  
CONTROL, COMMUNICATIONS, AND  
INTELLIGENCE)  
ASSISTANT SECRETARY (FINANCIAL MANAGEMENT  
AND COMPTROLLER, AIR FORCE  
AUDITOR GENERAL, ARMY AUDIT AGENCY  
DIRECTOR, DEFENSE INFORMATION SYSTEM  
AGENCY

SUBJECT: Audit Report on Communications Systems Year 2000 End-to-End Tests  
(Report No. D-2000-066)

We are providing this audit report for review and comment. This report is one in a series being issued by the Inspector General, DoD, in accordance with an informal partnership with the DoD Chief Information Officer to identify progress made by DoD Components that are preparing information and technology systems for year 2000 compliance. Comments from both the Army and the Defense Information Systems Agency were considered in preparing this report.

Management comments provided by the Army on the draft of this report conformed to the requirements of DoD Directive 7650.3. The Defense Information Systems Agency suggested that Recommendations 1.a and 1.b, which relate to the Enhanced Pentagon Capability System, be redirected to the Air Force Pentagon Communications Agency for comments. Through discussion with the Air Force Pentagon Communications Agency and the Defense Information Systems Agency, we learned that there was a general disagreement between the Air Force Pentagon Communications Agency and the Defense Information Systems Agency regarding ownership of the Enhanced Pentagon Communications System. The Air Force Pentagon Communications Agency indicated that responsibility for answering the recommendations lies with Defense Information Systems Agency. The Defense Information Systems Agency contended that, because no memorandum of agreement had been finalized, the responsibility for the Pentagon Enhanced Capability System still lies with the Air Force Pentagon Communications Agency. For future management purposes, the confusion between the Defense Information Systems Agency and the Air Force over program management responsibilities for the Enhanced Pentagon Capability System should be resolved. We recommend that the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) adjudicate this matter and ensure clear designation of program management responsibilities for that system. We request that Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) respond to that recommendation by February 21, 2000.

Through recent discussions with the Nuclear Operation Division Standards and Assessment Branch, Joint Chiefs of Staff, we learned that the Joint Chiefs of Staff have included contingency planning for the Enhanced Pentagon Capability in a contingency plan covering several other systems. Therefore, we have dropped draft Recommendation 1.b from the final report.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Mr. Garold E. Stephenson at (703) 604-9332 (DSN 664-9332) (gstephenson@dodig.osd.mil) or Mr. Kent E. Shaw at (703) 604-9228 (DSN 664-9228) (kshaw@dodig.osd.mil). See Appendix E for the report distribution. The audit team members are listed inside the back cover.

A handwritten signature in black ink that reads "Robert J. Lieberman". The signature is written in a cursive style with a large, prominent "R" and "L".

Robert J. Lieberman  
Assistant Inspector General  
for Auditing

## Office of the Inspector General, DoD

Report No. D-2000-066  
(Project No. 9CH-5048)

December 23, 1999

### Communications Systems Year 2000 End-to-End Tests

#### Executive Summary

**Introduction.** This report is one in a series being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts to address the year 2000 computing challenge. This report addresses year 2000 issues that pertain to the end-to-end testing of communications systems. For a listing of audit projects addressing the issue, see the year 2000 webpage on the IGMET at <http://www.ignet.gov>.

**Objective.** The overall objective of the audit was to evaluate the effectiveness of the planned communications systems Y2K end-to-end tests. Specifically, we reviewed mission-critical communications systems to determine whether they were tested as required and verified that test plans and results conformed to requirements in the DoD Y2K Management Plan.

**Results.** Virtually all of the required end-to-end testing of mission-critical and mission essential communications systems was properly performed and documented in accordance with the DoD Y2K management plan. Generally, there were valid reasons given for systems that were not subjected to end-to-end testing. However, the Enhanced Pentagon Capability System, a system that provides critical communications capabilities, did not have an assigned program manager or a memorandum of understanding establishing responsibilities between the concerned parties. Therefore, responsibility for updating a system contingency plan was unclear at the time of the audit. Also, the DoD Y2K database contained 6 duplicate systems that needed to be removed to avoid erroneous reporting.

**Summary of Recommendations.** We recommend that the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) assign a program manager for the Enhanced Pentagon Capability System and require the contingency plan for the system to be updated. We recommend that the Army Chief Information Officer remove the duplicate communications systems identified in this report from the DoD year 2000 database.

**Management Comments.** The Army concurred with the recommendation addressed to the Chief Information Officer and stated approval has been requested from the ASD (C3I) for removal of the six duplicate communications systems from the Y2K database. We have verified that the database was corrected.

Based on comments from the Defense Information Systems Agency contesting ownership of the Enhanced Pentagon Communication System, we have redirected our recommendation to name a Program Manager for the Enhanced Pentagon Capability System to the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence). This is not a year 2000 issue per se, but needs to be clarified for future management purposes. We request that the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) provide its comments on the recommendation by February 21, 2000. We have deleted our recommendation that the Defense Information Systems Agency update the contingency plan for the Enhanced Pentagon Capability System after learning that the Joint Chiefs of Staff had completed a draft contingency plan that includes the Enhanced Pentagon Capability System on December 15, 1999. The draft contingency plan is expected to be signed by December 27, 1999.

# Table of Contents

---

## Executive Summary

## Introduction i

Background	1
Objective	3

## Finding

End-to-end tests on Mission-critical Communications Systems	4
---	---

## Appendixes

A. Audit Process	11
Scope	11
Methodology	12
Prior Coverage	13
B. Mission-critical Communications Systems Tested under Joint User Switch Exercise	14
C. Mission-critical Communications Systems Tested under the Army's 10/4 Test	15
D. Mission-critical Communications Systems Tested under the Battle Group System Integration Test	16
E. Report Distribution	18

## Management Comments

Department of Army Comments	21
Defense Information Systems Agency Comments	22

---

## Background

**Problem Description.** The year 2000 (Y2K) problem is the term most often used to describe the potential failure of information technology systems to process or perform date-related functions before, on, or after the turn of the century. The Y2K problem is rooted in the way that automated information systems record and compute dates. For the past several decades, systems have typically used two digits to represent the year, such as 98 representing 1998, to conserve on electronic data storage and reduce operating costs. However, the year 2000 is indistinguishable from the year 1900 with the two-digit format. As a result of the ambiguity, computers and associated system and application programs that use dates to calculate, compare, or sort could generate incorrect results when working with years following 1999. Calculation of Y2K dates is further complicated because the year 2000 is a leap year, the first century leap year since 1600. The computer systems and applications must recognize February 29, 2000, as a valid date.

**End-to-End Testing.** The end-to-end test event is used to verify that a defined set of interrelated systems, which collectively support an organizational core business function, interoperate as intended in an operational environment. These interrelated systems include systems managed and owned by the organization and external systems used as interfaces. Usually, end-to-end testing is conducted when one major system in the end-to-end chain is modified or replaced. At that point, attention is rightfully focused on the changed or new system. However, since 2000 testing involves modifying or replacing numerous systems that are end-to-end, the scope and complexity of the testing is increased because of the difficulty of isolating, identifying and correcting problems. During planning for end-to-end tests, it is critical to analyze the organization's core business functions, the interrelationships among systems supporting these functions, and potential risk exposure because of date induced system failure(s) in the chain of support.

**DoD Y2K Management Plan.** The DoD Y2K Management Plan provides guidance for planning, execution, and evaluation to assess progress toward demonstrating Y2K readiness throughout DoD. The OSD Principal Staff Assistants must ensure that the end-to-end functional processes that support their functional area are assessed in accordance with the following criteria as defined in the management plan.

- Systems needed in a major theater war will be tested in a CINC OPEVAL and tested a second time in a CINC Y2K functional-area end-to-end test, or a Service-sponsored Y2K systems integration test.

- All other mission-critical systems will be evaluated at least once in either a functional-area Y2K end-to-end test or a Service-sponsored Y2K systems integration test.
- Systems that are stand-alone and have no date dependency may be excluded from testing.

The Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) is the Principal Staff Assistant responsible for communications. Section 334(d) of Public Law 105-261, "National Defense Authorization Act for Fiscal Year 1999," requires end-to-end tests through a Defense major range and test facility base whenever a military exercise is not feasible or such an exercise imposes undue risk.

**Communications Functional Y2K Master Plan.** On April 5, 1999, the Office of the Assistant Secretary of Defense, Command, Control, Communications, and Intelligence) issued draft version 3.0 of its Communications Functional Y2K Master Plan. Communications are defined as long-haul communications systems, base communications systems, and deployed and afloat communications systems. The plan focused on end-to-end testing of critical communications functions and identified 286 communications systems that needed testing.

**Mission-critical Communications Systems.** Because the 286 systems identified in the Communications Functional Y2K Master Plan included duplicate systems, and systems that were no longer identified as mission-critical, we used the DoD Y2K database as the source for determining which mission-critical systems should be subjected to testing. As of October 1, 1999, the DoD Y2K database identified 278 mission-critical communications systems. However, as discussed on page 7, "Duplicate Reporting in the OSD Database," we identified 6 systems that were erroneously included twice in the Y2K database. After adjusting for these errors, we identified 272 mission-critical communications systems as shown below.

#### **DoD Mission-critical Communications Systems**

<u>Component</u>	<u>Number of Systems</u>
Army	64
Navy and Marine Corps	130
Air Force	35
Defense Information Systems Agency	26
CINCs	17
<b>Total</b>	<b>272</b>

---

## **Objective**

Our overall objective was to evaluate the effectiveness of the planned communications systems Y2K end-to-end tests. Specifically, we reviewed mission-critical communications systems to determine whether they were tested as required and verified that test plans and results conformed to requirements in the DoD Y2K Management Plan. See Appendix A for a discussion of the audit scope and methodology and summary of prior coverage related to the audit objectives.

---

## **End-to-End Testing for Mission-critical and Mission Essential Communications Systems**

Virtually all required end-to-end testing of mission-critical communications systems was properly performed and documented in accordance with the DoD Y2K management plan. Generally, there were valid reasons for those systems that were not subjected to end-to-end testing such as not being date sensitive, standalone systems, or having been previously subjected to alternate testing. The following problems were identified as needing immediate attention.

- There was no program manager assigned to the Enhanced Pentagon Capability System, a system that provides critical communications capabilities. Appropriate management oversight of mission critical systems is needed to assure that those systems are operational during the century rollover. This deficiency was caused by delays in developing a Memorandum of Agreement between the users of the system.
- The OSD Y2K database had six mission-critical Army communications systems listed twice under different identification numbers. The duplicate entries were caused by personnel errors and lack of attention to details.

As a result of these discrepancies, there is a higher risk that the Enhanced Pentagon Capability System may not be operate properly during the century rollover and Y2K compliance status reports to the Office of Management and Budget may be erroneous if the duplicate systems are not removed.

## **End-to-End Testing for Mission-critical Communications Systems**

The DoD Components have subjected 41 of the 272 mission-critical systems to end-to-end testing. In addition, 100 of the 272 mission-critical systems were subjected to other Y2K testing such as OPEVALs and system integration tests (including 25 systems tested under the Navy Battle Group System Integration Test). Appendix D lists the systems tested under the Battle Group System Integration Test. The mission-critical communications systems included

---

135 systems that did not require testing because they were either not date sensitive, or were stand alone systems, developmental systems, terminated systems, systems being replaced, or exempted systems.

## Testing completed by the Department of Defense

The Department generally used three major tests administered by the Army and the Navy to do most of the end-to-end testing (see Appendixes B, C and D). Other end-to-end tests on a smaller scale were done by the Army, Air Force, and the Defense Information Systems Agency (DISA).

**Joint User Switch Exercise Test.** The Joint User Switch Exercise (JUSE) was a major Y2K communications test performed by the Army Communications Electronics Command (CECOM), Software Engineering Center. The JUSE test encompassed over 30 total force organizations, tested 55 separate items (commercial and tactical), and involved over 600 people<sup>1</sup>. Each future date was tested for 3 days, and the entire test duration was 26 days. The test evaluated Y2K compliance for the Defense messaging system, automatic digital network, and the supporting communication infrastructure including routers, switches, and servers. Testing was accomplished by dispatching a set of standard messages back and forth through the switch or switches being tested. To facilitate testing, the systems being tested were connected to an isolated network that would not interfere with existing operational systems. The CECOM used a global positioning satellite (GPS) to control the dates used during the testing process. This GPS permitted the command to rapidly change the dates to test the leap year, year 2000 rollover, the 9-9-99 "end-of-file" problem and the year 2001 rollover. The time was recorded when the operator dispatched a message and when the message was received. Any major discrepancies in the data were recorded and checked. The messages dispatched included a variety of types and sizes and were dispatched at different hours of the day. The use of the GPS facilitated testing because the date changes could be easily coordinated between the several military installations that were involved. The tests appeared to be well designed and well documented. One limitation of the test, however, was that components were not tested for problems that could be incurred when some installations are located in different time zones. We have no information regarding this limitation.

**The Army 10/4 Evaluation Test.** The Director, Army Information Systems Command, Control, Communication and Computers (DISC4) directed testing and coordinated visits to each active corps 10th Signal Battalion and 4th Corps to conduct Y2K evaluations on their communications architecture (backbone). The DISC4 used these evaluations to identify problems with

---

<sup>1</sup> The communications OPEVAL was also conducted during the United States Commander in Chief Atlantic Command JUSE. The "Communications Year 2000 (Y2K) Operational Evaluation (OPEVAL) 30-Day Final Report" was issued on July 7, 1999, by the 17th Test Squadron, Schriever Air Force Base, Colorado.

---

selected Government off-the-shelf or commercial off-the-shelf hardware, or software used by the units. The Army conducted 10/4 evaluations for five communications systems, however only one of the five systems was actually date dependent. The one date-dependent system that was tested was found to be Y2K compliant.

**Battle Group System Integration Test.** The Battle Group System Integration Test is a routine predeployment readiness assessment used to test shore-ship-shore communications performed by the Naval Command, Control and Ocean Surveillance Center Research, Development, Test, and Evaluation Activity, Pacific. Operational validation of communications systems for the U.S.S. *Constellation*, U.S.S. *John F. Kennedy*, U.S.S. *Kitty Hawk*, U.S.S. *John C. Stennis*, and the U.S.S. *Dwight D. Eisenhower* Task Forces were planned and four of the five battle groups have already been tested. Testing of the U.S.S. *Eisenhower* took place during October 10 through 30, 1999. Specific objectives of the test include date rollover to January 1, 2000; ensure 1999 dates are correctly processed after rollover to year 2000; assess fleet interfaces; and document any anomalies. Two Inspector General, DoD, audits examined the Battle Group System Integration Testing<sup>2</sup>.

**Other End-to-End Testing.** The Army, the Air Force, and DISA also completed other testing. The Army Single Agency Manager for Pentagon Information Technology Service tested the Pentagon Automated Communications Systems (DA01073); the Army Military Satellite Communications, Fort Monmouth, New Jersey, tested the Army Secure Mobile Anti-Jam Reliable Tactical Terminal (DA00719); and the Defense Communications and Army Transmission Systems, Fort Monmouth, New Jersey tested the Heavy Terminal/ Medium Terminal Modified (SEC) (DA02441). The Air Force Materiel System Group tested the Automated Intersite Gateway System (2002489). The DISA completed end-to-end testing on the Bosnia C2 Augmentation (D314), Telecommunication Management System (D204A), Asynchronous Transfer Mode (D316), and Enhanced Pentagon Capability System (D325E). All tested systems were found to be Y2K compliant.

## **Y2K Compliance of the Enhanced Pentagon Capability System**

As part of the audit, we determined whether end-to-end testing was conducted on each of the 272 mission-critical communications systems and whether such testing met the requirements of the DoD Y2K Management Plan. We also

---

<sup>2</sup> Report No 99-171 "Audit of the Space and Naval Warfare Systems Command Preparations for Year 2000 Battle Groups Systems Integration Testing," May 26, 1999, and Report No. D2000-047 "Follow-on Audit of U.S. Atlantic Command Year 2000 Issues-Phase II," December 3, 1999.

---

determined whether contingency plans had been developed as required. We identified one system that did not meet requirements established by the plan to ensure Y2K compliance.

**Enhanced Pentagon Capability System.** The Enhanced Pentagon Capability System, a CINC Thin-line system, provides secure voice conferencing connections in high-stress communication conditions. The system was reported on the OSD Y2K database as a DISA system in July 1999 yet the DISA, has not yet assumed ownership of the system pending approval of a Memorandum of Agreement between the system's users. It is important that the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) assign a program manager for the Enhanced Pentagon Capability System immediately to assure appropriate management oversight during the century rollover.

## **Duplicate Reporting in the OSD Y2K Database**

During our review, we identified six mission-critical Army communications systems that were listed twice under different identification numbers. Duplicate database entries can result in erroneous reporting on the Y2K status of mission-critical systems to the Office of Management and Budget.

**Duplicate Mission-critical Communications  
Systems in OSD Y2K Database**

<b>Army System Identification</b>	<b>System Name</b>	<b>System Acronym</b>	<b>Remarks</b>
DA00664	Force Entry Switch, AN/TTC-50	MSE-FES	Related to DA02242, dropped from CECOM Y2K database but not from the DoD Y2K database
DA00666	Node Center Switch, AN/TTC-47	MSE-NCS	Related to DA02242, dropped from CECOM Y2K database but not from the DoD Y2K database
DA00668	Nodal Control Mobile Subscriber Access	NC MS ACS	Duplicate of DA02230
DA00670	Compact Digital Switch (CDS)(SEC)	AN/TTC-39E(V)1	Duplicate of DA02233
DA02055	Small Extension Node AN/TTC-48(SEC)	MSE-SEN	Duplicate of DA02239
DA02694	Large Extension Node, AN/TTC-46	MSE-LEN	Related to DA02242, dropped from CECOM Y2K database but not from the DoD Y2K database

## Conclusion

The end-to-end tests conducted on the DoD communications systems were adequately planned and conducted with the exception of the Enhanced Pentagon Capability System. Six duplicate entries in the Y2K management database needed to be removed to ensure accurate reports on DoD Y2K readiness.

## Management Comments on the Finding and Audit Response

**DISA Comments.** The DISA disagreed with the statement that one limitation of the JUSE test was that components were not tested for problems that could be incurred when some installations are located in different time zones. DISA stated that the JUSE testing included connectivity across CONUS, Hawaii, Europe and Southwest Asia.

---

**Audit Response.** According to CECOM engineers, test times and dates used during the JUSE testing were centrally controlled with Global Positioning Satellite receivers so that all tested sites were set to the same time and date. This methodology facilitated the testing coordination between the sites, but did not test the effect of having activities on different time zones. As previously stated, the impact of this limitation in the testing procedures could not be determined. The full text of management's comments is provided at the end of this report.

## **Recommendations, Management Comments, and Audit Response**

**Redirected, Renumbered, and Deleted Recommendations.** As a result of management comments from DISA and subsequent discussions with personnel from the Joint Chiefs of Staff, the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence), the Air Force Pentagon Communications Agency, and DISA, we redirected Recommendation 1.a. and deleted Recommendation 1.b. from the report. Recommendation 1.a. was renumbered as Recommendation 1. and redirected to the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) because of disagreement between the DISA and the Air Force Pentagon Communications Agency as to ownership of the Enhanced Pentagon Communications Capability System. Recommendation 1.b. was deleted after we learned that, on December 15, 1999, the Joint Staff had developed a draft contingency plan that included contingencies for the Enhanced Pentagon Capability System. The contingency plan was expected to be signed by December 27, 1999.

**1. We recommend that the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) immediately assign a program manager for the Enhanced Pentagon Capability System.**

**Audit Response.** We request the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) provide comments on Recommendation 1. by February 21, 2000.

**2. We recommend that the Army, Chief Information Officer remove the duplicate communications systems identified in this report from the DoD Year 2000 database.**

**Army Comments.** The Director for Information Management concurred with Recommendation 2. stating that the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) had placed a freeze on changes to mission-critical systems in the DoD Y2K database but the Army had requested

---

approval to remove the six duplicate communications systems from the database. As soon as the request was approved, the Army would remove the six duplicate systems.

**Audit Response.** We confirmed that the six duplicate systems were removed from the Y2K database.

---

## Appendix A. Audit Process

This report is one in a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts to address the Y2K computing challenge. For a listing of audit projects addressing the issue, see the Y2K web page on the IGnet at <http://www.ignet.gov>.

### Scope

**Work Performed.** Using the OSD Y2K database, we identified 272 mission-critical communications systems. Through inquiries, with the Y2K Services' management offices, DISA, and the program managers for the individual systems, we determined that 135 of the 272 systems did not require testing because they were either not date sensitive, stand alone systems, developmental systems, terminated systems, systems being replaced, or exempted systems. We also determined that 100 mission-critical systems were subject to other than end-to-end testing such as, OPEVALs and system integration tests. We identified 41 systems subjected to end-to-end testing. We regarded the fact that the system was a stand-alone system (i.e. not interconnected with other systems), not date dependent, still under development, terminated, or expected to be replaced, as valid reasons for not performing end-to-end testing. For those systems that we believed needed testing, we reviewed the testing plans and verified that the documentation required by the DoD Y2K Management Plan had been prepared. The necessary documentation included the certification checklist; quick look reports, risk assessments, contingency plans; test plans and procedures, test results, data analysis plans, and memorandum's of agreement. We met with managers at the Army CECOM who were responsible for coordinating systems testing to examine the testing methods. We excluded the systems subjected to OPEVAL testing from the scope of this audit because other DoDIG teams reviewed them. Also, 2 of the 41 systems subjected to end-to-end testing were not communications systems and therefore, not reviewed during this audit.

**DoD-Wide Corporate Level Government Performance and Result Act Goals.** In response to the Government Performance Result Act, the Department of Defense has established 2 DoD-wide Corporate level performance objectives and 7 subordinate performance goals. This report pertains to achievement of the following goal (and subordinate performance goal):

**Goal 2:** Prepare now for an uncertain future by pursuing a focused modernization effort that maintains U.S. qualitative superiority in key warfighting capabilities. Transform the force by exploiting the Revolution in Military Affairs, and reengineer the Department to achieve a 21<sup>st</sup> century infrastructure. Performance Goal 2.2: Transform U.S. military forces for the future. (00-DoD-2.2)

---

**DoD Functional Area Reform Goals.** Most major DoD functional areas have also established performance improvement reform objectives and goals. This report pertains to achievement of the following objectives and goals.

- **Information Technology Functional Area.** Objective: Become a mission partner. Goal: Service mission information users as customers. (ITM-1.2)
- **Information Technology Management Functional Issue Area.** Objective: Provide services that satisfy customer information needs. Goal: Modernize and integrate DoD information infrastructure. (ITM-2.2)
- **Information Technology Management Functional Issue Area.** Objective: Provide services that satisfy customer information needs. Goal: Upgrade technology base. (ITM-2.3)

**General Accounting Office High-Risk Area.** The General Accounting Office has identified several high-risk areas in the Department of Defense. This report provides coverage of the information Management and Technology high-risk area.

## Methodology

**Use of Computer -Processed Data.** We relied on the DoD Y2K database as a source to identify mission-critical communications systems. We did sufficient audit work to conclude that the data in the DoD Y2K database was sufficiently reliable to meet our audit objectives.

**Audit Type, Dates, and Standard.** We performed this program audit from May 1999 to October 1999, 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 and organizations within DoD. Further details are available upon request.

**Management Control Program.** We did not review the management control program related to the overall audit objective because DoD recognized the Y2K issue as a material management control weakness area in the FY 1998 annual Statement of Assurance.

---

## Prior Coverage

The General Accounting Office and the Inspector General, DoD, have conducted multiple reviews related to Y2K issues. General Accounting Office reports can be accessed over the Internet at <http://www.gao.gov>. Inspector General, DoD, reports can be accessed over the Internet at <http://www.dodig.osd.mil>.

---

## Appendix B. Mission-critical Communications Systems Tested under Joint User Switch Exercise

Component	Identification		
	Number	System Name	
Defense Information Systems Agency	D201	Defense Message System Release 2.0a	
	D202	Defense Information System Network, Deployed Switch Multiplex Unit	
	D313	Automatic Digital Network	
	D315	Defense Satellite Communication System	
	D318	Defense Information Systems Network- Integrated Digital Network Exchange	
	D326	Defense Switched Network	
	D343	Internet Unclassified but sensitive Protocol Router Network & Secret Internet Protocol Router Network	
	Army	DA00589	Satellite Configuration Control Element
		DA00659	Message Switch
DA00663		Packet Gateways	
DA00667		Packet Switch	
DA00672		Nodal Control Circuit Switch	
DA01162		Enhanced Switch Operations Program	
DA01908		Space Command Defense Satellite Communication System	
DA01928		Digital Communications Satellite Subsystem	
DA01989		TACSAT Terminal	
DA02052		TACSAT Terminal	
DA02230		Circuit Switch Echelon Above Corps	
DA02233		Compact Digital Switch	
DA02239		Small Extension Node Switch	
DA02240		Switch Multiplex Unit	
DA02242		Mobile Subscriber Equipment-Large Switches	
DA02445	Army Switch Program		
DA02808	Family of Multiplexers		
Marine Corps	12786	Central Office Telephone Automatic	
	17330	Telephone Switches, Marine Corps	

---

## Appendix C. Mission-critical Communications Systems Tested under the Army's 10/4 Test

<b>Component</b>	<b>Identification Number</b>	<b>System Name</b>
Army	DA00657	MSE-NPT (AN/UYK-100)
	DA01167	SINGARS*
	DA01174	SPITFIRE 1 Manpack (AN/PSC-5)*
	DA02095	SATCOM Manpack Radio (AN/PSC-7)*
	DA02228	MSE Legacy LOS Shelters*

\* Not Date Sensitive

---

## Appendix D. Mission-critical Communications Systems Tested under the Battle Group System Integration Test

Component	Identification Number	System Name
Navy	5492	Navy EHF Communications Controller
	5495	ANCC/ATC VC1000 - Automated Network Control/Auto Tech Control (VARCOM)
	5496	EHF Low Data Rate Terminal - AN/USC-38(V)
	5499	Tactical Intel Info Exchange System II
	5500	High Frequency Radio Group
	5502	Tactical Receive Equipment (Engineering Design Model)
	5530	Baseband Switch Integrated Resource Manager
	5531	Circuit Mayflower Ashore
	5547	Gateguard
	5548	Personal Computer Message Terminal MARCEMP
	5549	Multilevel Mail Server
	5550	NOVA
	5553	Common User Digital Info Exchange Subsystem (Hardware)
	5554	Naval Automated Modular Communications System Afloat Component - AN/SYQ-7A(V) AN/SYQ-7B(V)
	5571	Common User Digital Information Exchange System (Software)
	5575	ANCC/ATC - Ashore NMSS-8000-DMSI
	5576	ANCC/ATC - Ashore- GSN
	5577	Automated Digital Multiplexer System
	5634	Automated Digital Network System
	5645	Extremely Low Frequency Communications System-Afloat

---

<b>Component</b>	<b>Identification Number</b>	<b>System Name</b>
	5650	AN/FSC-124 UHF Satellite Communications Demand Assigned Multiple Access
	6505	Automatic Identification System
	6521	AN/ARC-210 UHF/VHF Radio
	7921	Naval Communications Processing and Routing System
	7932	Common Source Routing File System

---

## **Appendix E. Report Distribution**

### **Office of the Secretary of Defense**

Under Secretary of Defense for Acquisition, Technology, and Logistics  
Director, Defense Logistics Studies Information Exchange  
Under Secretary of Defense (Comptroller)  
Deputy Chief Financial Officer  
Deputy Comptroller (Program/Budget)  
Assistant Secretary of Defense (Command, Control, Communications, and Intelligence)  
Deputy Chief Information Officer, and Deputy Assistant Secretary of Defense  
(Chief Information Officer, Policy and Implementation)  
Principal Director for Year 2000

### **Joint Staff**

Director, Joint Staff

### **Department of the Army**

Inspector General, Department of Army  
Auditor General, Department of Army  
Chief Information Officer, Department of Army  
Logistics Management College

### **Department of the Navy**

Inspector General, Department of the Navy  
Deputy Naval Inspector General for Marine Corps Matters  
Audit/Cost Management Division  
Auditor General, Department of the Navy  
Chief Information Officer, Department of Navy  
Superintendent, Naval Postgraduate School

### **Department of the Air Force**

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

---

## **Other Defense Organizations**

Director, Defense Contract Audit Agency  
Director, Defense Information Systems Agency  
  Chief Information Officer, Defense Information Systems Agency  
  Inspector General, Defense Information Systems Agency  
  United Kingdom Liaison Officer, Defense Information Systems Agency  
Director, Defense Logistics Agency  
Commandant, Defense Systems Management College  
Inspector General, Defense Intelligence Agency  
Director, National Security Agency  
  Inspector General, National Security Agency

## **Non-Defense Federal Organizations and Individuals**

Office of Management and Budget  
  Office of Information and Regulatory Affairs  
General Accounting Office  
  National Security and International Affairs Division  
  Technical Information Center  
  Director, Defense Information and Financial Management Systems, Accounting and  
  Information Management Division, General Accounting Office

## **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  
Senate Special Committee on the Year 2000 Technology Problem  
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  
House Subcommittee on Technology, Committee on Science



# Department of Army Comments



Office, Director of Information  
Systems for Command, Control,  
Communications, & Computers  
SAIS-IIAC

DEPARTMENT OF THE ARMY  
OFFICE OF THE SECRETARY OF THE ARMY  
107 ARMY PENTAGON  
WASHINGTON DC 20310-0107

29 Oct 99

MEMORANDUM FOR INSPECTOR GENERAL, DEPARTMENT OF DEFENSE,  
400 ARMY NAVY DRIVE, ARLINGTON, VA 22202

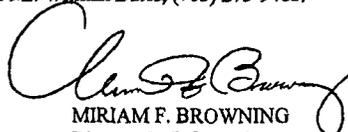
SUBJECT: Audit Report on Communications Systems Year 2000 End-to-End Tests (Project  
No 9CH-5048)

Reference DODIG memorandum, 21 October 1999, subject as above. As requested,  
following is the Army response to subject draft report.

**Recommendation.** We recommend that the Army, Chief Information Officer  
remove the duplicate communications systems identified in this report from the DoD year  
2000 database.

**Response.** Concur. OSD(C3I) has placed a freeze on changes to mission critical systems  
in the DoD year 2000 database without approval from the OSD Year 2000 Project Office. The  
Army has requested approval to remove the six duplicate communications systems from the  
database. As soon as approval is received, these six duplicates will be removed.

My point of contact for this action is Mr. William Dates, (703) 275-9483.

  
MIRIAM F. BROWNING  
Director for Information  
Management

CF: SAAG-PMO-S

# Defense Information Systems Agency Comments



IN REPLY  
REFER TO:

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

Inspector General (IG)

12 November 1999

MEMORANDUM FOR INSPECTOR GENERAL, DEPARTMENT OF DEFENSE  
(ATTN: CONTRACT MANAGEMENT DIRECTORATE)

SUBJECT: Response to DoD IG Draft Audit Report, "Audit of the  
Communication Systems Year 2000 End-to-End Tests"  
(Project No. 9CH-5048)

1. The attached enclosure is the official DISA response to the  
subject report. DISA was required to issue formal comments on  
Recommendations 1.a. and 1.b. These recommendations are  
addressed in the enclosure along with generalized comments.

2. If you have any questions, please call Ms. Teddie Lou  
Steiner, Audit Liaison, at (703) 607-6316.

A handwritten signature in black ink, appearing to read "R. Race".

RICHARD T. RACE  
Inspector General

Enclosure a/s

*Quality Information for a Strong Defense*

DOD IG DRAFT REPORT  
DOD IG CODE 9CH-5048

"Audit of the Communication Systems Year 2000 End-to-End Tests,"

DEFENSE INFORMATION SYSTEMS AGENCY COMMENTS TO THE  
RECOMMENDATIONS.

We recommend that the Director, Defense Information Systems Agency:

a. Immediately assign a program manager for the Enhanced Pentagon Capability System.

b. Direct the program manager to update the contingency plan for the Enhanced Pentagon Capability System.

**Response: We believe these issues should more appropriately be addressed to the Single Agency Manager currently the Air Force Pentagon Communications Agency for comment and action. (Please see general comments below.)**

General Comments.

**A.1. Topic: Subsection: End-to-end testing for mission critical and mission essential communication systems. First sub-bullet, Page 4.**

**A.2. Response #1: Enhanced Pentagon Capabilities System (EPC) is an application which utilizes secure voice (DRSN) features of the Raytheon manufactured secure voice DSS/JDS family of circuit switches. Currently, the Air Force Pentagon Communication Agency is the Single Agency Manager (SAM) working for the NMCC and is the Program Manager for EPC. Only engineering support is provided by DISA. Thus, a program manager has already been identified within DOD for EPC.**

**A.3. Response #2: Page 7 1<sup>st</sup> paragraph (last 2 sentences). Although the Director DISA, ASDC3I and the Pentagon Communications Agency opened discussions in January 1999, the required Memorandum of Agreement (MOA) has not yet finished final negotiations due to mutual budgetary concerns. Therefore, DISA has not assumed Program Manager responsibilities or obtained a copy of the EPC Y2K Contingency Plan for review and assessment.**

**B 1. Topic: Subsection: Joint user switch exercise (JUSE) test. Page 5, Paragraph 1, next to last sentence. Factual statement or criticism "One limitation of the test, however, was that components were not tested for**

Redirected

Deleted

problems that could be incurred when some installations are located in different time zones.”

**B.2 Response #3:** Factually the statement is incorrect. JUSE did include connectivity across CONUS, Hawaii, Europe and Southwest Asia (SWA).

**C.1 Topic:** Subsection Y2K compliance of the Enhanced Pentagon Capability System. Paragraph 2 (of subsection) Page 6 and Page 7.

**C.1 Response #4:** Page 6. The EPC Contingency Plan was developed by Air Force Pentagon Communication Agency staff and DISA has no comment on the adequacy of the EPC contingency plan or its content.

Deleted

## **Audit Team Members**

The Contract Management Directorate, Office of the Assistant Inspector General for Auditing, DoD, prepared this report.

Paul J. Granetto

Garold E. Stephenson

Kent E. Shaw

Elaine M. Jennings

Steve I. Case

George B. West, Jr.

Andrew D. Greene

Tracy L. Simmons