Audit Report

OFFICE OF THE INSPECTOR GENERAL

CONGRESSIONALLY REQUESTED AUDIT OF THE AIRBORNE SELF-PROTECTION JAMMER

Report No. 95-128

February 22, 1995

Department of Defense

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Acronyms

ASPJ	Airborne Self-Protection Jammer
ASTOVL	Advanced Short-Takeoff and Vertical Landing
BIT	Built-in-Test
COEA	Cost and Operational Effectiveness Analysis
COMOPTEVFOR	Commander, Operational Test and Evaluation Force
DAB	Defense Acquisition Board
EW	Electronic Warfare
FMS	Foreign Military Sales
GAO	General Accounting Office
JAST	Joint Advanced Strike Technology
OSD	Office of the Secretary of Defense
OT&E	Operational Test and Evaluation
TEMP	Test and Evaluation Master Plan
USD(A&T)	Under Secretary of Defense for Acquisition and Technology

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
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February 22, 1995

MEMORANDUM FOR DIRECTOR, OPERATIONAL TEST AND EVALUATION
ASSISTANT SECRETARY OF THE NAVY (FINANCIAL MANAGEMENT)

SUBJECT: Congressionally Requested Audit of the Airborne Self-Protection Jammer (Report No. 95-128)

We are providing this final report for your review and comments. Senator David Pryor requested this audit of the Airborne Self-Protection Jammer (ASPJ) in April 1994. The audit addressed the Navy plans to test and install the ASPJ on the F-14D aircraft, the appropriateness of DoD support for the integration of the ASPJ through Foreign Military Sales, and DoD efforts to identify cost-effective self-protection systems for common use on Navy and Air Force aircraft. Comments on a draft of this report were considered in preparing the final report.

DoD Directive 7650.3 requires that all audit recommendations be resolved promptly. Therefore, we request that the Director, Operational Test and Evaluation; the Commander, Operational Test and Evaluation Force; and the F-14D Program Manager provide comments on the unresolved recommendations by April 24, 1995.

We appreciate the courtesies extended to the audit staff. If you have questions on this audit , please contact Mr. John E. Meling, Program Director, at (703) 604-9091 (DSN 664-9091) or Mr. Brian M. Flynn, Project Manager, at (703) 604-9076 (DSN 664-9076). Appendix F lists the distribution of this report. The audit team members are listed inside the back cover.

Robert J. Lieberman
Assistant Inspector General
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Office of the Inspector General, DoD

Report No. 95-128
(Project No. 4AE-5036)

February 22, 1995

THE CONGRESSIONALLY REQUESTED AUDIT OF THE AIRBORNE SELF-PROTECTION JAMMER

EXECUTIVE SUMMARY

Introduction. The Airborne Self-Protection Jammer (ASPJ) is an electronic countermeasure system. Operational test and evaluation of the ASPJ system, using the Navy's F/A-18 aircraft, determined that the ASPJ was not operationally suitable or operationally effective, resulting in termination of production contracts in December 1992. However, the Navy plans to use the ASPJ on 53 F-14D aircraft if operational tests show that the aircraft are more survivable with ASPJ than without it. The F-14D aircraft operational tests are scheduled for FY 1995. The Under Secretary of Defense for Acquisition and Technology supports ASPJ deployment if it contributes to F-14D survivability. In addition, the DoD plans to assist the foreign sales of the ASPJ through ASPJ software integration on F/A-18 and F-16 aircraft.

Objectives. We initiated this audit at the request of Senator David Pryor. He asked us to evaluate Navy plans to test and install the ASPJ on the F-14D aircraft, review the appropriateness of DoD integration of ASPJ software through Foreign Military Sales, and review DoD efforts to identify cost-effective self-protection systems for common use on Navy and Air Force aircraft.

Audit Results. DoD's plans to integrate commercially purchased ASPJs into foreign military sales purchased F/A-18 and F-16 aircraft were deemed appropriate. Further, DoD plans to identify cost-effective electronic warfare self-protection systems for common use on next-generation Navy and Air Force aircraft are in progress. However, the Navy's operational test plan for the F-14D aircraft does not contain measures of effectiveness to make an objective assessment as to whether the ASPJ makes a positive contribution to F-14D aircraft survivability. As a result, the ASPJ could be deployed to the F-14D aircraft fleet without the Navy knowing whether the ASPJ does make a positive contribution to F-14 aircraft survivability. Because the planned F-14D aircraft operational test is not designed to determine the operational effectiveness and suitability of the ASPJ, DoD decisionmakers will not be able to use the test results to support future decisions (not now planned) to produce additional ASPJs or install the ASPJ on aircraft other than the F-14D.

Internal Controls. Internal controls were not assessed because time constraints dictated that we focus solely on the questions posed by the requestor.

Potential Benefits of Review. Potential benefits for this audit are nonmonetary. Potential benefits of the audit are in Appendix D.

Summary of Recommendations. We recommended that:

o the F-14D Program Manager, in conjunction with the Commander, Operational Test and Evaluation Force, revise the F-14D aircraft Test and Evaluation Master Plan and F-14D Aircraft-Dedicated Operational Test Plan to include specific ASPJ measures of effectiveness and

o the Director, Operational Test and Evaluation, withhold approval of the F-14D Aircraft Test and Evaluation Master Plan until specific ASPJ measures of effectiveness are included.

Management Comments. The Commander, Operational and Test Evaluation Force, did not agree to revise the F-14D test plans to establish discrete ASPJ measures of effectiveness for determining whether the ASPJ makes a positive contribution to F-14D aircraft survivability and whether the demonstrated ASPJ built-in-test performance is satisfactory. Instead, the Commander said that testers would collect discrete effectiveness data for determining whether the F-14D aircraft is more survivable with the jammer than without it and discrete suitability testing to characterize ASPJ's built-in test performance. The Director, Operational Test and Evaluation, stated that the recommended measures of effectiveness were not applicable to the scope and planned outcome of the F-14D/ASPJ operational test phase. Therefore, he stated that he would approve the F-14D test plans if the Navy provided for collection of discrete ASPJ effectiveness and suitability data as stated above. Part II contains a discussion of management's comments to the report. Part IV contains the complete texts of comments from the Naval Commander, Operational Test and Evaluation Force, and the Director, Operational Test and Evaluation.

Audit Response. We revised one recommendation in response to management comments. We stand by all other recommendations as written. Unless the Navy establishes objective and meaningful ASPJ measures of effectiveness in F-14D test plans, DoD and Navy decisionmakers will not be able to make an objective assessment as to whether the ASPJ makes a positive contribution to F-14D aircraft survivability and whether the demonstrated ASPJ built-in-test performance is satisfactory at the end of the F-14D operational test. We request that the Director, Operational Test and Evaluation; the Naval Commander, Operational Test and Evaluation Force; and the F-14D Program Manager reconsider their positions and provide additional comments to the final report by April 24, 1995.

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This report was prepared by the Acquisition Management Directorate, Office of the Assistant Inspector General for Auditing, DoD.

Part I - Introduction

Background

The Airborne Self-Protection Jammer (ASPJ) is an electronic countermeasure system originally designed for use on multiple aircraft types. The ASPJ is intended to increase aircraft survivability by jamming or deceiving radar-controlled weapons of the enemy by projecting a false location of the aircraft.

The dedicated operational test and evaluation of the ASPJ was conducted from August 1991 through April 1992, using the Navy's F/A-18 aircraft. The Commander, Operational Test and Evaluation Force (COMOPTEVFOR), and the Director, Operational Test and Evaluation (OT&E), Office of the Secretary of Defense, reported on the test results. The organizations concluded that the ASPJ was not operationally suitable and the Director, OT&E, also concluded that the ASPJ was not operationally effective. As a result, the Under Secretary of Defense for Acquisition and Technology (USD[A&T]) directed the Navy to cancel ASPJ production contracts. The International Telephone and Telegraph Corporation and the Westinghouse Electric Corporation developed and produced the ASPJ. Before production contract cancellation, the contractors had produced 95 units of the ASPJ.

Cancellation of the ASPJ production contracts affected the electronic warfare (EW) suite planned for the F-14D aircraft, which was designed to use the ASPJ exclusively. Consequently, the Navy has decided to test and use the 95 already procured ASPJ units for its 53 F-14D aircraft. The production contracts' cancellation also effected Foreign Military Sales (FMS). Korea, Finland, and Switzerland wanted to procure ASPJs for F/A-18 and F-16 aircraft they acquired through FMS contracts. Instead of procuring ASPJ hardware through FMS, these countries now plan to procure the hardware directly from the manufacturers. For security reasons, the U.S. Government will provide the ASPJ software integration through FMS.

In 1993, the Comptroller of the Department of Defense* released $7.8 million in FY 1993 Research, Development, Test and Evaluation funding for testing ASPJ in the F-14D aircraft. With the funding, the Navy procured six modified ASPJ forward and aft installation racks and interim support financing. The Navy Air Test and Evaluation Squadron Four plans to conduct the F-14D operational test in FY 1995.

The Navy does not plan to acquire additional ASPJs for future upgrades to the F-14 aircraft even if the ASPJ proves operationally effective and suitable on the F-14D aircraft.

*Renamed Under Secretary of Defense (Comptroller) in October 1994.

Objectives

We initiated this audit at the request of Senator David Pryor. He asked us to evaluate the Navy plans to test and install the ASPJ on the F-14D aircraft, review the appropriateness of DoD integration of ASPJ software through FMS, and review DoD efforts to identify cost-effective self-protection systems for common use on Navy and Air Force aircraft. Appendix A contains the complete text of Senator Pryor's letter. Part II contains a finding and recommendations on the Operational Testing of the Airborne Self-Protection Jammer. Appendix B addresses DoD Efforts to Identify Cost-Effective Self-Protection Systems for Common Use. The section, "Prior Audits and Other Reviews," discusses our results on the appropriateness of DoD integration of ASPJ software through FMS.

Scope and Methodology

We performed this program results audit from April through October 1994 and reviewed records dated from July 1991 through October 1994. We performed this audit in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD, and accordingly included such tests of internal controls as were deemed necessary.

We concentrated on Navy plans for the operational testing and deployment of the ASPJ on F-14D aircraft and appropriateness of U.S. integration of commercially bought ASPJs on FMS aircraft. We reviewed and discussed the F-14D dedicated operational test and evaluation test plan and the F-14D test and evaluation master plan with the F-14D program office and COMOPTEVFOR to determine:

- the extent of testing dedicated to ASPJ;
- whether corrections to reported ASPJ operational effectiveness and suitability deficiencies will be tested; and
- whether the test plan, when executed, will produce sufficient data to show whether the ASPJ contributes to F-14D survivability.

We also discussed the appropriateness of DoD support for the integration of the ASPJ through the Foreign Military Sales program with the Navy Tactical Air Electronic Warfare, F-14D, and F/A-18 program offices and interviewed DoD and Navy personnel responsible for implementing FMS policy. Because of time constraints, we conducted a status review of relevant programs associated with DoD efforts to identify cost-effective self-protection systems for common use on Navy and Air Force aircraft. We did not rely on computer-processed data to support our audit results. Appendix E lists the organizations visited or contacted.

Internal Controls

Internal controls were not assessed because time constraints dictated that we focus solely on the questions posed by the requestor.

Prior Audits and Other Reviews

The General Accounting Office (GAO) issued a report in June 1994 that addressed our audit objective concerning the appropriateness of DoD integration of ASPJ software through FMS. The results of our audit support the conclusions drawn by the GAO in that report. One other report by the GAO and one by the Inspector General, DoD, relating to ASPJ development are discussed in Appendix C.

Part II - Finding and Recommendations

Operational Testing of the Airborne Self-Protection Jammer

The Navy's operational test plan for the F-14D aircraft does not contain measures of effectiveness to determine whether the ASPJ contributes to F-14D survivability. The F-14D operational test plan was designed to measure the collective contributions all F-14D electronic warfare systems made to determine aircraft survivability, mission effectiveness, and suitability. As a result, the ASPJ could be deployed on F-14D aircraft without the Navy knowing whether the ASPJ does make a positive contribution to F-14D aircraft survivability.

Background

Congressional Concern About ASPJ Testing as Part of the F-14D Aircraft Operational Test. On August 5, 1993, Senator Pryor raised concerns to the Secretary of Defense about operational testing and deployment of the ASPJ on F-14D aircraft in view of the ASPJ system failing the operational tests and the termination of the program in 1992. On September 8, 1993, the USD(A&T) responded to the Senator and stated that he supported operational testing and subsequent deployment of the ASPJ system on the F-14D aircraft if that aircraft was assessed more survivable with the EW suite than without it and the ASPJ was determined to be supportable in the fleet. On March 22, 1994, the Deputy Under Secretary for Defense (Acquisition Reform) amplified this policy during congressional hearings stating:

> As part of the F-14D operational evaluation, it [the F-14D aircraft] will be tested with the ASPJ. If it is determined that the F-14D is more survivable with the ASPJ than without it, it will be installed for fleet use. The Deputy Secretary of Defense, however, has committed to instruct the Navy to withhold any F-14D testing of this system until a Director of Operational Test and Evaluation has been confirmed, is on the job, and offers recommendations as to the adequacy and utility of such tests.

On October 3, 1994, the Senate confirmed the President's nominee for Director, OT&E.

DoD Testing Policy. DoD Instruction 5000.2, "Defense Acquisition Management Policies and Procedures," February 23, 1991, requires that the Director, OT&E, approve the adequacy of OT&E plans for all major Defense acquisition programs before the initiation of operational testing. The Instruction also requires that all material deficiencies identified during operational testing be corrected before system deployment and the Military Department's independent test organization verify those corrections during follow-on OT&E. Further, the Instruction requires that the system developer certify that the system is ready for the dedicated phase of OT&E before the Military Department's independent test organization conducts the operational test.

Navy Testing Policy. Navy Instruction 5440.47F, "Mission and Functions of Operational Test and Evaluation Force," May 21, 1984, assigns COMOPTEVFOR, the Navy's independent test organization, with responsibility for:

o planning and conducting OT&E in a realistic, threat-representative operational environment;

o conducting follow-on OT&E to verify resolution of problems revealed during OT&E and to demonstrate that operational suitability criteria, such as reliability, maintainability, and availability, are actually achieved; and

o developing tactics and procedures for employment of systems that undergo OT&E.

ASPJ Improvements and F-14D Operational Test Plans

Navy Efforts to Improve ASPJ's Operational Performance Since 1992. In 1992, COMOPTEVFOR concluded that the ASPJ was not operationally suitable during operational tests because the ASPJ failed critical operational issues such as reliability, human factors, and built-in-test (BIT), all due to BIT deficiencies. COMOPTEVFOR also concluded that the Navy needed to improve ASPJ's effectiveness and correct the BIT deficiencies before ASPJ deployment. On December 4, 1992, the Director, OT&E, evaluated the same ASPJ operational test results and concluded that in addition to COMOPTEVFOR's determinations, the ASPJ was not operationally effective when compared to aircraft with and without existing self-protection jammers.

When incorporating the ASPJ in the F-14D aircraft, the Navy changed the F-14D aircraft and ASPJ configurations that may resolve some of the ASPJ operational effectiveness and suitability performance deficiencies identified during ASPJ's 1992 operational tests. Configuration changes include:

o installing ASPJ forward and aft installation racks designed to specifically fit the F-14D aircraft (the Navy believes that the racks will eliminate many BIT failures noted in the ASPJ operational test that were caused by racks fitting poorly in the F/A-18 test aircraft);

o updating the ASPJ user data file concerning the threat library and electronic countermeasure techniques and incorporating the ASPJ with improved BIT software in the F-14D operational flight program;

o incorporating multifilter assemblies in each quadrant of the F-14D aircraft to permit the aircraft radar and the ASPJ to share frequency bands to carry out their assigned missions without interference;

o adding an aft high band transmitter and augmentation receiver to the ASPJ; and

o modifying the F-14D airframe and antenna.

The impact of these configuration changes on ASPJ's operational effectiveness and suitability will not be known until the F-14D aircraft-dedicated OT&E is conducted. Through October 1994, the F-14D aircraft developer had not certified that the configuration changes were ready for the F-14D aircraft dedicated OT&E.

Draft F-14D Aircraft Test and Evaluation Master Plan. In March 1994, the Navy Program Executive Officer for Tactical Air and COMOPTEVFOR revised the F-14D aircraft test and evaluation master plan (TEMP) in response to direction from the USD(A&T) and the Chief of Naval Operations. The draft TEMP would require COMOPTEVFOR to assess the ASPJ for its contribution to mission success as an element of the F-14D aircraft EW suite during the F-14D aircraft-dedicated OT&E. The EW suite consists of the ASPJ, the ALE-39 countermeasure dispenser system, and the ALR-67 radar warning receiver. The draft F-14D aircraft TEMP is pending approvals from the Director, OT&E, and the Director, Test and Evaluation, Office of the USD(A&T).

F-14D Aircraft-Dedicated Operational Test and Evaluation Test Plan. As a result of revising the F-14D aircraft TEMP, COMOPTEVFOR revised the F-14D aircraft-dedicated OT&E Test Plan (F-14D Test Plan) to add the test objective for determining whether the aircraft EW suite contributes to mission accomplishment in a threat system environment and increases aircraft survivability. In addition, the F-14D Test Plan indicates that testers will determine the effectiveness of aircraft maneuvers alone as a defense against threat missiles.

The F-14D Test Plan states that a minimum of 18 sorties, approximately 32.4 flight hours, will be allocated to collect EW effectiveness data necessary to measure the ASPJ's contribution to F-14D aircraft survivability. Each F-14D aircraft sortie will last from 1.3 to 1.8 hours and will use one of six different combinations of EW defensive techniques. During each sortie, the testers plan to collect data on the effectiveness of each subsystem of the EW suite and aircraft maneuvers by measuring their contribution to defeating ground threat radars. The F-14D Test Plan indicates that another 60 sorties will be flown during power projection missions and threat detection and tracking missions that periodically will also allow the testers to measure the effectiveness of the EW techniques as a secondary test objective.

The Commander, Air Test and Evaluation Squadron Four, is responsible for the execution of the dedicated F-14D aircraft-dedicated operational test and evaluation. In terms of BIT testing, the Squadron's F-14D operational test director stated that the ASPJ would be tested before, during, and after each sortie except when the operational test director decides that the ASPJ will interfere with certain test objectives and when the ASPJ is undergoing maintenance.

The table summarizes the number of sorties dedicated to the collection of ASPJ effectiveness and suitability data as conducted during the 1992 ASPJ-dedicated OT&E and the planned F-14D aircraft-dedicated OT&E.

Sorties Allocated for ASPJ Data Collection
(1.3 to 1.8 hours per sortie)

Sorties	During 1992 ASPJ-Dedicated OT&E	Planned During F-14D Aircraft-Dedicated OT&E
ASPJ Effectiveness Sorties	63	18
ASPJ Suitability Sorties	200+	200+

Also, the F-14D Test Plan states that testers will consult the ASPJ test report for the 1992 OT&E to assist in answering whether or not similar ASPJ results were observed during the F-14D aircraft-dedicated OT&E.

Office of the Director, Operational Test and Evaluation, Assessment of the F-14D Test Plan. The Military Assistant for Air Warfare Systems believed that the planned EW tests in the F-14D Test Plan will collect sufficient effectiveness data necessary to measure the ASPJ's contribution to F-14D aircraft survivability. However, he stated that the 18 dedicated EW sorties are probably not sufficient to make a statistical comparison with the ASPJ operational test results from 1992. He added that for comparison purposes, the planned tests are sufficient to confirm positive or negative trends in ASPJ performance. He also believed that 200 or more flight hours of ASPJ suitability testing could determine whether improvements in BIT performance were made.

Determining Whether ASPJ Effectiveness Contributes to F-14D Survivability

As drafted, the F-14D Test Plan will enable COMOPTEVFOR to collect data to measure whether the ASPJ contributes to F-14D aircraft survivability. However, the F-14D Test Plan did not contain a measure of effectiveness for use by testers in determining whether the ASPJ makes a positive contribution to F-14D survivability. This condition was caused by COMOPTEVFOR designing the F-14D Test Plan to measure the collective contributions all F-14D aircraft EW systems made instead of measuring individual EW system contributions to determine aircraft survivability.

Measure of Effectiveness. The F-14D Test Plan did not include a specific ASPJ measure of effectiveness similar to one established for the 1992 ASPJ dedicated OT&E for determining whether the ASPJ contributes to F-14D aircraft survivability.

For the 1992 OT&E, COMOPTEVFOR assessed ASPJ performance for:

o responding in a timely manner and confusing threat radar operators, by measuring the probability of threat shots taken, and

o degrading and denying threat tracking, by measuring the probability of threat shots taken that resulted in hits.

COMOPTEVFOR used the determined probabilities to compute an ASPJ measure of effectiveness for aircraft survivability. However, the F-14D test plan requires ASPJ data be collected as part of the EW suite without separately computing an aircraft survivability factor based on ASPJ performance. Based on the Deputy Under Secretary for Defense (Acquisition Reform)'s commitment to Congress, COMOPTEVFOR needs to establish a specific ASPJ measure of effectiveness to determine whether the F-14D aircraft is more survivable with the ASPJ than without it before the ASPJ is deployed for fleet use.

Comparison of ASPJ Test Results. The F-14D Test Plan states that the testers will consult the ASPJ test report for the 1992 OT&E to assist in answering whether or not similar ASPJ results were observed during the F-14D aircraft-dedicated OT&E. In our opinion, this comparison is important because the testers can determine the extent that ASPJ contributes to F-14D aircraft survivability. Additionally, testers must clearly state the results of the comparison in the ensuing test report to dispel potential criticism that the ASPJ was not adequately tested before being deployed to the F-14D aircraft fleet.

Measuring ASPJ Built-In-Test Performance

As drafted, the F-14D Test Plan will enable COMOPTEVFOR to collect sufficient ASPJ data on BIT performance. Poor BIT performance was the primary deficiency identified during the 1992 OT&E. However, the F-14D Test Plan did not contain a specific ASPJ measure of effectiveness for determining an acceptable level of performance for ASPJ BIT suitability. This condition was caused by COMOPTEVFOR designing the F-14D Test Plan to measure the collective contributions all F-14D EW systems made to determine F-14D aircraft survivability, mission effectiveness, and suitability. COMOPTEVFOR stated that as a subsystem of the aircraft, ASPJ is included in the list of avionics work unit codes and, therefore, will be evaluated for operational suitability.

COMOPTEVFOR stated that it was not possible to compare ASPJ's BIT performance on the F/A-18 aircraft (used for ASPJ testing in 1992) to the BIT performance on the F-14D aircraft because of differences in aircraft size and configuration. Although a direct comparison of BIT failure rates may not be relevant in determining the degree of improvements to the ASPJ BIT performance, an ASPJ measure of effectiveness, including BIT performance, is necessary so testers can objectively comment on ASPJ BIT performance at the completion of the F-14D aircraft-dedicated OT&E.

Conclusion

Test data to be collected during the F-14D aircraft-dedicated OT&E should provide COMOPTEVFOR sufficient test data to measure ASPJ's contribution to F-14D aircraft survivability, mission effectiveness, and suitability. However, objective and meaningful measures of effectiveness, for determining whether the ASPJ makes a positive contribution to F-14D aircraft survivability and for ASPJ BIT performance, need to be in the F-14D Test Plan before the F-14D aircraft-dedicated OT&E is carried out. Because the planned F-14D aircraft operational test is not designed to determine the operational effectiveness and suitability of the ASPJ, DoD decisionmakers will not be able to use the test results to support future decisions (not now planned) to produce additional ASPJs or install the ASPJ on aircraft other than the F-14D.

Recommendations, Management Comments, and Audit Responses

1. We recommend that the F-14D Program Manager, in conjunction with the Commander, Operational Test and Evaluation Force, revise the draft F-14D aircraft Test and Evaluation Master Plan and F-14D Aircraft-Dedicated Operational Test and Evaluation Test Plan to include specific Airborne Self-Protection Jammer measures of effectiveness for determining:

a. Whether the Airborne Self-Protection Jammer makes a positive contribution to F-14D aircraft survivability.

b. Airborne Self-Protection Jammer mission suitability, including built-in-test performance.

Commander, Operational Test and Evaluation, Comments. The Commander did not concur with the recommendation. He stated that the F-14D Test Plan contains three measures of effectiveness that will allow COMOPTEVFOR to specifically address ASPJ effectiveness. He stated that the measures of effectiveness (shot denial, missile lethality, and shot degradation) are similar to that collected in the earlier dedicated ASPJ operational test and evaluation. He also stated that although no specific subsystems are mentioned in the F-14D Test Plan, BIT performance will be measured for all applicable avionic subsystems. Accordingly, he believes that sufficient performance data will be collected to support specific F-14D/ASPJ comments and recommendations in the report issued on the F-14D operational test and evaluation.

Based on recommendations from the F-14D Test Planning Working Group, the Commander stated that the F-14D TEMP and Test Plan were being updated to include the following critical operational issue: "Is the F-14D more survivable with ASPJ as a part of the EW suite than without it?"

The Commander also stated that the recommendations should be addressed to the F-14D Program Office because only the F-14D Program Office has authority for updating the TEMP.

Audit Response. Management comments were not fully responsive to the intent of Recommendations 1.a. and 1.b. Establishing a critical operational issue in the TEMP that states "Is the F-14D more survivable with ASPJ as a part of the EW suite than without it?" is a step in the right direction. However, COMOPTEVFOR has not taken the next step to enable an objective answer to this critical operational issue, that is, establishing separate (discrete) ASPJ levels of performance or thresholds for the measures of effectiveness to determine whether the ASPJ makes a positive contribution to F-14D survivability and whether the ASPJ's BIT performance is satisfactory for use on the F-14D aircraft. Under the current test plan methodology, EW effectiveness tests will measure the combined effects of radar warning, expendables, self-protection jamming, and aircraft maneuvering. Further, though EW suitability tests will record ASPJ BIT performance separately, the results will be assessed as part of the overall F-14D BIT performance.

However, establishing measures of effectiveness is important because decisionmakers need to have an objective benchmark as to what degree of added F-14D aircraft survivability provided by the ASPJ warrants the costs of installing, maintaining, and operating the system. Second, it is just as important for decisionmakers to know what is the minimum ASPJ BIT performance needed that warrants the costs of installing, maintaining, and operating the ASPJ. To do this, the F-14D Program Manager needs to analyze ASPJ life-cycle and support costs relative to the increase in F-14D survivability as demonstrated in the F-14D operational test.

Based on management comments, we readdressed Recommendations 1.a. and 1.b. in the final report to the F-14D Program Manager as well as the Commander, Operational Test and Evaluation Force. Accordingly, we ask that management reconsider its position in response to the final report.

Director, Operational Test and Evaluation, Comments. The Director stated that resolution of previous effectiveness and suitability issues is not a pre-condition of fielding the jammer in F-14D aircraft. He suggested deleting ASPJ measures of effectiveness in draft report Recommendations 1.b. (ASPJ mission effectiveness improvement) and 1.c. (ASPJ BIT performance improvement) and replacing them with Recommendation 1.b., a new ASPJ measure of effectiveness for suitability.

Audit Response. Based on management comments, we deleted draft report Recommendations 1.b. and 1.c. and replaced them with a new Recommendation 1.b., addressing a new measure of effectiveness for suitability, including BIT performance.

2. We recommend that the Director, Operational Test and Evaluation, approve the F-14D Aircraft Test and Evaluation Master Plan only after the F-14D Program Manager and the Commander, Operational Test and Evaluation, include specific Airborne Self-Protection Jammer measures of effectiveness as identified in Recommendation 1.

Director, Operational Test and Evaluation, Comments. The Director concurred with the intent of Recommendation 1, but stated that the recommended measures of effectiveness were not applicable to the scope and planned outcome of the F-14D/ASPJ operational test phase. However, he stated that it is essential that the planned F-14D operational test characterize the jammer's discrete capabilities and limitations when operating in the F-14D aircraft and its mission environment. In this regard, he stated that he would only approve the F-14D TEMP and Test Plan if the Navy provides for collection of:

o discrete effectiveness data sufficient to determine that the F-14D aircraft is more survivable with the jammer than without it and

o discrete suitability testing to characterize ASPJ reliability, maintainability, and BIT-installed performance as a component of the F-14D's integrated EW and avionics suite.

Audit Response. Management's comments are partially responsive to the intent of the recommendation. We applaud the Director's decision not to approve the F-14D TEMP and Test Plan until the Navy plans to collect discrete ASPJ effectiveness and suitability data. We still believe, however, that the DoD and Navy need to establish objective and meaningful ASPJ measures of effectiveness in the F-14D TEMP and Test Plan. We do not advocate that the recommended ASPJ measures of effectiveness correlate directly to the ASPJ measures of effectiveness established for earlier ASPJ operational tests but that they are adequate to determine whether or not the jammer makes a positive contribution to F-14D aircraft survivability and whether the demonstrated ASPJ BIT performance is satisfactory. Accordingly, we ask that the Director reconsider his position in response to the final report.

Note: We also made appropriate changes to the report based on specific management comments made on statements in the draft report. The complete text of management comments is in Part IV.

Part III - Additional Information

Appendix A. Letter From Senator Pryor

DAVID PRYOR
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April 14, 1994

Mr. Derek J. Vander Schaaf
Deputy/Acting Inspector General
U.S. Department of Defense
400 Army-Navy Drive
Room 1000
Arlington, VA 22202

Dear Mr. Vander Schaaf:

I am writing to ask that your office conduct a timely audit of the Department of Defense's current plans relative to the Airborne Self-Protection Jammer (ASPJ) program.

As you know, the ASPJ program has a long, troubled history. This poorly managed program was constantly plagued by cost overruns and inadequate performance. In 1992, ASPJ was cancelled after it failed operational test and evaluation on the Navy's F/A-18 aircraft. Unfortunately, during the 16 year life of ASPJ, the Navy contradicted our "fly before you buy" pledge by purchasing 95 ASPJ jammers before testing had justified such purchases.

I am disturbed by the DoD's plan to test and install the 95 existing ASPJ's on our F-14D aircraft. As you may know, the Navy is currently updating its F-14D Test and Evaluation Master Plan (TEMP) to include a limited ASPJ evaluation. I was recently informed that these operational tests will not proceed until a Director, Operational Test and Evaluation (DOT&E) has been confirmed by the U.S. Senate and allowed proper input in this process.

Given the continuing absence of a test director, I find it necessary to ask you to audit the U.S. Navy and its plans to test and install these controversial radar jammers in our F-14D aircraft. Specifically, I would like you to assess the adequacy of the planned F-14D tests in determining whether ASPJ would protect our Navy pilots, and also, whether these tests would address ASPJ's inadequacies that were exposed during previous operational tests. I also hope your audit would address the impact of planned ASPJ F-14D testing on the Navy's plans for future upgrades to that aircraft.

Furthermore, I am concerned about the DoD assisting in the foreign sales of the ASPJ to our allies. As you may know, current Defense Department policy prohibits the production of additional ASPJ radar jammers. I would like your investigation to include an analysis of whether the DoD's support for the integration of ASPJ through the Foreign Military Sales program contradicts this policy of no new ASPJ production.

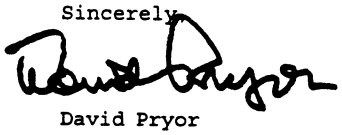
Finally, when the Air Force abandoned ASPJ in 1989, the DoD allowed the Services to act independently in their efforts to meet aircraft self-protection requirements. I have grown increasingly concerned about the lack of corporate thinking in this area.

Since the ASPJ program was cancelled in 1992, the DoD has yet to reevaluate its self-protection needs for all Air Force and Navy aircraft in an effort to reassess how the military Services might work cooperatively to save time and money.

I would like your opinion on the adequacy of the DoD's efforts to find cost-effective systems for maximum common use on existing and next generation Air Force and Navy aircraft. Please provide suggestions on how the DoD might best achieve this goal.

I sincerely hope your audit will be completed expeditiously. Please be prepared to update my office of your progress by June 1, 1994. If you have any questions regarding this request, please contact my office at (202) 224-2353.

Sincerely,



David Pryor

Appendix B. DoD Efforts to Identify Cost-Effective Self-Protection Systems for Common Use

We reviewed on-going Navy and Air Force aircraft development efforts to determine DoD efforts to develop cost-effective self-protection systems for common use on Navy and Air Force aircraft. These efforts are primarily focused on the next generation of Navy and Air Force aircraft needed as replacements for the AV-8B, F/A-18, F-14, and F-16 aircraft, and, later, the F-15E and F-111 aircraft.

Aircraft Programs

F-22 Aircraft Program. The F-22 aircraft program established the Joint Integrated Avionics Working Group (Joint Working Group) to develop common avionics across new aircraft developments. As a result, the Integrated Electronic Warfare System will be developed for use in the F-22 aircraft. It will provide an advanced EW capability to include self-protection jamming for the F-22 and future aircraft by eliminating redundant hardware and using common electronic modules. The Joint Advanced Strike Technology (JAST) program is structured to capitalize on the F-22 program effort to define a common avionic architecture for its flying demonstrators.

Advanced Short-Takeoff and Vertical Landing Program (ASTOVL). The ASTOVL program is a joint effort between the Navy, the Advanced Research Project Agency, and the National Aeronautics and Space Administration to demonstrate technologies required to construct and fly an ASTOVL demonstrator aircraft by FY 1999. The ASTOVL Program will investigate the feasibility of designing a single lightweight, affordable aircraft to conduct missions currently performed by the AV-8B, F-16, and F/A-18 aircraft. In FY 1995, the JAST Program Office will evaluate the ASTOVL aircraft as a candidate for one of the flying concept demonstrators to satisfy joint Military Department requirements. As a JAST flying demonstrator, the aircraft would be subject to the same EW system commonality requirements as other emerging prototype aircraft.

Joint Advanced Strike Technology Program. The JAST program is designed to pursue technology that future U.S. combat aircraft can use. In terms of avionics and software, such as aircraft self-protection systems, the JAST program plans to identify critical technologies in the area of avionics architecture definition that will capitalize on efforts of the F-22 Joint Working Group. According to the Bottom-Up Review, the JAST program will focus on developing common components for future engines, avionics, ground support,

training, munitions, and advanced mission planning. DoD expects to achieve commonality by using joint requirements, proven technology, and a requirement to make the resulting aircraft affordable.

Conclusion

The DoD has on-going Navy and Air Force aircraft development efforts to develop cost-effective self-protection systems, among other aircraft components, for common use on Navy and Air Force aircraft. The JAST program will produce two demonstrator aircraft with different technologies that could be incorporated in next-generation Navy and Air Force aircraft. Also, the F-22 aircraft and ASTOVL programs will make significant technology contributions to the two demonstrator aircraft that will evolve from the JAST program. From the aircraft technology demonstrations, DoD expects to achieve commonality in next-generation combat aircraft systems, including self-protection systems.

Appendix C. Prior Audits and Other Reviews

General Accounting Office (GAO) Report No. GAO/NSIAD 94-202 (Office of the Secretary of Defense [OSD] Case No. 9704), "Use of FMS in Proposed Commercial Sale of Airborne Self-Protection Jammer," June 16, 1994. The GAO reported that DoD's decision to permit the foreign military sale of ASPJ software was not consistent with DoD statements in congressional correspondence that the FMS sale of the ASPJ would not be allowed. However, the GAO stated that DoD's decision to permit the sale of the ASPJ's software through the FMS program did comply with the USD(A&T)'s policy on FMS because the sale was approved based on national security and technical concerns. Further, GAO stated that DoD's decision did not raise any U.S. financial liability or national security concerns. Specifically, the ASPJ software sale would not make the U.S. Government responsible for the performance of the commercially procured ASPJ hardware. In addition, the GAO stated that the U.S. Government would have no cost implications should disputes arise because FMS buyers are responsible for all program costs. GAO agreed with DoD that the sale of software through FMS procedures is a standard practice. The report did not contain recommendations.

GAO Report No. GAO/NSIAD 92-103 (OSD Case No. 8943), "Electronic Warfare: Established Criteria Not Met for Airborne Self-Protection Jammer Production," March 23, 1992. The GAO reported that the ASPJ did not meet the Defense Acquisition Board (DAB) established reliability criterion for further production. Before the production decision, the GAO stated that the Navy changed the DAB-approved reliability criterion to exclude system failures attributable to software errors after system failures occurred during the reliability growth testing. The GAO stated that the DAB knew at the June 24, 1991, program review that the Navy had changed the criterion for measuring ASPJ reliability but had allowed the ASPJ program to continue production. If software-induced failures had been in the reliability test results, the ASPJ would have failed the test by a large margin. Further, the GAO reported that ASPJ reliability growth testing conducted after the DAB showed that ASPJ's software problems were continuing. The report did not contain recommendations.

Office of the Assistant Inspector General for Auditing, DoD, Report No. 93-069, "The Airborne Self-Protection Jammer Program as Part of the Defense Acquisition Board Review Process - FY 1993," March 22, 1993. This classified report concluded that the ASPJ did not meet user needs and stated that a cost and operational effectiveness analysis (COEA) had not been performed to support the planned Milestone III, Production and Development, decision.

The report recommended to the USD(A&T) that

- the ASPJ program be canceled,
- the Navy and Air Force prepare a COEA,

o a DAB program review be convened to determine the best course of action for fulfilling overall DoD operational requirements for aircraft self-protection, and

o the Navy end procurement of ASPJ systems as low-rate initial production and terminate production.

In response to the report, the USD(A&T) directed the Navy to cancel ASPJ production contracts that implemented Recommendations 1. and 4. Concerning Recommendations 2. and 3., the USD(A&T) agreed to review all possible alternatives to fulfill the urgent requirement for self-protection on the F/A-18 aircraft, including new systems, and that any decision concerning alternatives would be based on a new COEA. The COEA will be conducted in FY 1995. Management comments also noted that the Navy and the Air Force are already joint participants in a classified program on aircraft self-protection.

Appendix D. Summary of Potential Benefits Resulting From Audit

Recommendation Reference	Description of Benefit	Amount and/or Type of Benefit
1.	Program Results. Will ensure that the Navy establishes measures of effectiveness needed for the testers to determine whether the ASPJ contributes to F-14D aircraft survivability.	Nonmonetary.
2.	Program Results. Will ensure that the Navy begins the F-14D aircraft-dedicated operational test and evaluation only after ASPJ-specific measures of effectiveness are established.	Nonmonetary.

Appendix E. Organizations Visited or Contacted

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition and Technology, Washington, DC
  Director, Acquisition Program Integration, Washington, DC
  Director, Test and Evaluation, Washington, DC
    Deputy Director, Electronic Warfare, Washington, DC
    Principal Deputy Assistant Secretary of Defense (Dual Use Technology and International Programs), Washington, DC
Director, Operational Test and Evaluation, Washington, DC
Deputy Director, Weapon Systems Division, Defense Security Assistance Agency, Arlington, VA

Office of the Secretary of the Navy

Assistant Secretary of the Navy (Research, Development and Acquisition), Washington, DC
  Joint Advanced Strike Technology Program Office, Arlington, VA
  Program Executive Officer, Tactical Aircraft Programs, Arlington, VA
    F-14D Program Office, Arlington, VA
    F/A-18 Program Office, Arlington, VA
    Tactical Air Electronic Warfare Program Office, Arlington, VA
Naval Air Systems Command, Arlington, VA
Navy International Program Office, Arlington, VA
Commander, Operational Test and Evaluation Force, Norfolk, VA
  Air Test and Evaluation Squadron Four, Point Mugu, CA
Weapons Division, Naval Air Warfare Center, Point Mugu, CA

Office of the Secretary of the Air Force

Global Integration Division, Deputy Assistant Secretary of the Air Force for International Affairs, Arlington, VA

Other Government Organization

General Accounting Office, Washington, DC

Appendix F. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition and Technology
  Director, Test, Systems Engineering and Evaluation
  Director, Tactical Warfare Programs
  Deputy Under Secretary of Defense (Acquisition Reform)
Under Secretary of Defense (Comptroller)
Director, Defense Security Assistance Agency
Director, Operational Test and Evaluation
Assistant to the Secretary of Defense (Public Affairs)

Department of the Navy

Assistant Secretary of the Navy (Financial Management)
Assistant Secretary of the Navy (Research, Development, and Acquisition)
  Joint Advanced Strike Technology Program Office
  Program Executive Officer, Tactical Aircraft Programs
    F-14D Program Office
    Tactical Air Electronic Warfare Program Office
Naval Air Systems Command
Navy International Program Office
Commander, Operational Test and Evaluation Force
Auditor General, Department of the Navy

Other Defense Organizations

Director, Defense Contract Audit Agency
Director, Defense Logistics Agency
Director, National Security Agency
Inspector General, Central Imagery Office
Inspector General, Defense Intelligence Agency
Inspector General, National Security Agency
Director, Defense Logistics Studies Information Exchange

Non-Defense Federal Organizations

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

Chairman and Ranking Minority Member of each of the following Congressional Committees and Subcommittees:

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

Senator David Pryor

Part IV - Management Comments

Director, Operational Test and Evaluation, Comments

OFFICE OF THE SECRETARY OF DEFENSE
WASHINGTON, DC 20301-1700

OPERATIONAL TEST
AND EVALUATION

20 DEC 1994

MEMORANDUM FOR THE INSPECTOR GENERAL, DOD

SUBJECT: Report on the Congressionally Requested Review of the Airborne Self Protection Jammer (Project No. 4AE-5036)

I have reviewed the findings and recommendations in the October 31, 1994 draft report and offer the following comments:

1. I will only approve the appropriate F-14D/ASPJ TEMP and test plan if they provide for collection of discrete effectiveness data sufficient to determine the F-14D is more survivable with the jammer than without it. This is fully compliant with the Department's guidance to the Navy regarding preconditions for a favorable ASPJ fielding decision. Furthermore, I will ensure the F-14D/ASPJ OT&E plan outlines discrete suitability testing sufficient to characterize ASPJ reliability, maintainability, and built-in-test installed performance as a component of the F-14D's integrated electronic warfare and avionics suite.

2. While I concur with the overall intent of the Recommendations For Corrective Action (page 12, para 1), I am concerned that your proposed Airborne Self-Protection Jammer measures of effectiveness are not applicable to the scope and planned outcome of the F-14D/ASPJ OT&E phase. Previous ASPJ operational testing has been adequate to determine that the jammer is neither effective nor suitable when evaluated against user derived criteria. The Navy acknowledges the systems already delivered have performance limitations, but the Service believes ASPJ can still contribute an important incremental improvement to F-14D combat survivability compared to the no jammer alternative. Since the Navy plans to install existing systems, it was never envisioned that the F-14D/ASPJ operational evaluation would favorably resolve known performance deficiencies. It is essential, however, that planned OT&E characterize the jammer's discrete capabilities and limitations when operating in the F-14D and its mission environment.

3. Although the Navy has no plans to procure additional ASPJ systems, a robust, disciplined F-14D/ASPJ operational test is needed to support an informed fleet fielding decision. The F-14D OT&E will not be a re-test of ASPJ. Quantifiable test results are applicable only to the F-14D installed configuration and will not supplant determinations reached during the previous F/A-18/ASPJ OT&E phases. Since the F-14D's primary

mission and combat operating environments are different than the F/A-18's intended concept of operations, test mission profiles and specific threat laydowns must be tailored to the F-14D's primary mission. As a result, some test methodology and evaluation criteria used in previous ASPJ OT&E will not apply to the F-14D test.

4. While F-14D/ASPJ OT&E must be adequate to determine whether or not the jammer makes a positive contribution to F-14D combat survivability, results should not be used to establish the efficacy of ASPJ when compared to other aircraft types or models. F-14D installed system built-in-test and single engagement mission effectiveness results can not be directly compared to outcomes of prior F/A-18/ASPJ testing due to different hardware installation, antenna coverage, aircraft radar cross section, software integration, etc. In our view, the F-14D results should only be compared with similar trends observed during the F/A-18 testing to increase confidence in the observed performance.

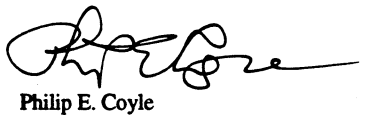
Recommended Changes:

1. (re: pages 10-11, para 4, Comparison of ASPJ Test Results) Delete all reference to comparison test outcomes. As noted above, F-14D and F/A-18 have unique ASPJ hardware and software integration schemes which make it extremely difficult to isolate the actual cause of observed performance variance. Furthermore, differences in expected concept of operations reduce the operational relevance of any direct performance comparisons.

2. (re: page 12, para 1, Recommendation for Corrective Action) Delete the current sub paragraphs b&c. Insert a new sub paragraph b to read:

b. Airborne Self-Protection Jammer suitability.

I appreciate this opportunity to respond to your preliminary findings and recommendations, my staff POC for the Airborne Self-Protection Jammer program is Colonel Gerry Christeson, (703)697-3891.



Philip E. Coyle
Director

Naval Commander, Operational Test and Evaluation Force, Comments

DEPARTMENT OF THE NAVY

COMMANDER OPERATIONAL TEST AND EVALUATION FORCE
7970 DIVEN STREET
NORFOLK, VIRGINIA 23505-1498

04 Jan 95

MEMORANDUM

From: Commander, Operational Test and Evaluation Force
To: Office of the Inspector General, Department of Defense

Subj: DOD/IG DRAFT REPORT ON THE CONGRESSIONALLY REQUESTED REVIEW OF THE AIRBORNE SELF-PROTECTION JAMMER (PROJECT NO. 4AE-5036)

Ref: (a) DoD/IG report of the F-14D/ASPJ Test Plan of 31 Oct 94
(b) CNO Memorandum Ser N880C1/4U65241 of 18 Nov 94

Encl: (1) Detailed Comments to the DoD/IG report of the F-14D/ASPJ Test Plan of 31 Oct 94

1. As requested in reference (a), enclosure (1) is submitted for your review.

2. COMOPTEVFOR has, for some time, advocated a more logical and fiscally responsible approach in testing the F-14D and associated subsystems. To this end, the following will clarify current efforts. The F-14D, along with the IRST and ASPJ subsystems, have been purchased and no further Milestone III acquisition decisions remain. Aircraft and aircrews are now actively deployed on the second extended deployment, participating in real world contingency operations. However, due to ASPJ issues regarding testing and integration, F-14D software and tactical development continues to incur significant delays.

3. As a result, COMOPTEVFOR has orchestrated F-14D test initiatives in support of continuing fleet deployments. In September 1994, a Quick Reaction Assessment (QRA) phase which focused primarily on the ECM capabilities of OFP D01 was conducted. As a result of this effort, as well as fleet and other exercise data gathered to date, OFP D01 can now be closed out and follow-on software development continued. Reference (b) endorses this approach and provides further guidance in the direction of the F-14D program. ASPJ testing is currently being re-aligned to occur in conjunction with OFP D02 development/ testing (OT-IIIA). COMOPTEVFOR is working closely with PMA-241 and the F-14D N-88 sponsor to update both the TEMP (Rev. A) and Test Plan to include specific ASPJ COI's. COMOPTEVFOR believes that this effort is in the best interest of the fleet and will

Subj: DOD/IG DRAFT REPORT ON THE CONGRESSIONALLY REQUESTED REVIEW OF THE AIRBORNE SELF-PROTECTION JAMMER (PROJECT NO. 4AE-5036)

allow the Navy to fully evaluate ASPJ enhancements to the F-14D and support an informed decision regarding future ASPJ deployment.

V. L. TOMLSON
Assistant Chief of Staff
for Air Warfare

DETAILED COMMENTS OF THE DOD/IG REVIEW

1. Page ii. Summary of Recommendations.
Issue (1): The first paragraph recommends that "the Commander, Operational Test and Evaluation Force, revise the F-14D Aircraft Test and evaluation Test Plan to include ASPJ measures of effectiveness...."
Comment (1): As a result of several Test Planning Working Groups, the TEMP was updated to include three measures of effectiveness (Missile Lethality, Shot Degradation and Shot Denial). COMOPTEVFOR believes that the inclusion of these additional measurements will allow sufficient ASPJ performance data to be collected during the testing period. It is the intent of COMOPTEVFOR to then make specific comments and recommendations concerning ASPJ performance in the OT-IIIA final report.
Comment (2): For clarity purposes, it should be noted that while COMOPTEVFOR does provide the Part IV and V inputs to the TEMP, these inputs are based upon the requirements established by the PMA in Part I of the document. Any deviation from the requirements established in Part I of the TEMP must be approved by the PMA. While COMOPTEVFOR can strongly advocate desired changes, it is ultimately the responsibility of the PMA to direct revisions.

Recommendation: Replace the paragraph with the following:
"We recommend that PMA-241 revise the Test and Evaluation Master Plan and F-14D Aircraft-Dedicated Operational Test and Evaluation Test Plan to include specific Airborne Self-Protection Jammer measures of effectiveness."

Issue (2): The second paragraph recommends that "the Director, Operational Test and Evaluation, withhold approval of the F-14D Aircraft Test and Evaluation Master Plan until the Commander, Operational Test and Evaluation Force, makes recommended revisions."
Comment: As noted above, for clarity purposes it should be pointed out that the program office (PMA-241) is responsible for revision to the TEMP.

Recommendation: Delete "...until the Commander, Operational Test and Evaluation Force, makes the recommended revisions." Replace with "..until the recommended revisions are made by the F-14 program office (PMA-241)."

2. Page 8. Fourth paragraph. ASPJ Improvements.
Issue: Statement regarding recent improvements to the ASPJ that says "incorporating an improved ALR-67 radar warning receiver to the ASPJ;"
Comment: ASPJ performs threat ID and direction finding internally only. ALR-67 improvements are independent of ASPJ upgrade efforts - there is no multi-sensor correlation capability (MSI) between the two subsystems.

Encl (1)

Recommendation: This statement should be deleted.

3. Page 10. Survivability - Second paragraph "Measures of Effectiveness" states that the F-14D Test Plan did not include an ASPJ specific survivability measure of effectiveness similar to the one established for the 1992 ASPJ OPEVAL.
Comments: The F-14D Test Plan contains three measures of effectiveness that will allow COMOPTEVFOR to specifically address ASPJ effectiveness. The MOE's are:
- shot denial
- missile lethality
- shot degradation

These MOE's are similar to the same component probabilities used in the ASPJ OPEVAL MOEs. The data collected will be similar to that collected in the ASPJ OPEVAL. In addition, COMOPTEVFOR believes that sufficient performance data will be collected to support specific F-14D/ASPJ comments and recommendations in the OT-IIIA final report.

Recommendation: Clarification of COMOPTEVFOR testing methodology

4. Page 11. Measuring Improvements in ASPJ Built-in-test Capability.
Issue: DoD/IG report states in paragraph 2 that "an ASPJ measure of effectiveness for BIT performance is necessary so the testers can objectively comment on ASPJ Bit performance..."
Comment: The Test Plan includes measures of suitability for system and subsystem BIT performance, including ASPJ. Although no specific subsystems are mentioned, BIT performance will be measured for all applicable avionic subsystems. As a subsystem of the aircraft, ASPJ is included in the list of avionics work unit codes (WUC) and therefore will be evaluated for operational suitability.

Recommendation: Clarification of COMOPTEVFOR testing methodology

5. Page 11. Conclusion.
Issue: The second sentence states that objective ASPJ MOEs should be included for determining "ASPJ mission effectiveness". This term was not previously defined and no finding was mentioned in the DoD/IG report. It should be pointed out that COMOPTEVFOR fully intended to measure ASPJ mission effectiveness within the currently existing "Aircraft Survivability" COI. ASPJ specific MOEs, noted in paragraph 3 of this enclosure, may better allow COMOPTEVFOR to make more specific determinations as to ASPJ's positive contribution to F-14D aircraft survivability, ASPJ mission effectiveness, and ASPJ BIT performance.

Recommendations:
(1) Clarification of COMOPTEVFOR testing methodology.
(2) This statement should be deleted since ASPJ mission effectiveness will be reported under aircraft survivability.

6. Page 12. Recommendations for Corrective Action.
Recommendation 1.
Issue (1): The paragraph recommends that COMOPTEVFOR revise the TEMP.
Comment (1): The responsibility for updating the TEMP resides with the program office (PMA-241).
Recommendation: Clarity

Issue (2): Recommendation to include specific ASPJ MOEs
Comment (1): A Critical Operational Issue (COI) was recommended by the Test Planning Working Group and supported by reference (b). The COI "Is the F-14D more survivable with ASPJ as a part of the EW suite than without it?" will be included in both the updated TEMP (Rev A) and Test Plan.

Recommendation: Replace the first sentence with the following:
" We recommend that the Navy revise the Test and Evaluation Master Plan and F-14D Aircraft-Dedicated Operational Test and Evaluation Test Plan to include specific Airborne Self-Protection Jammer measures of effectiveness for determining:...."

3

Audit Team Members

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