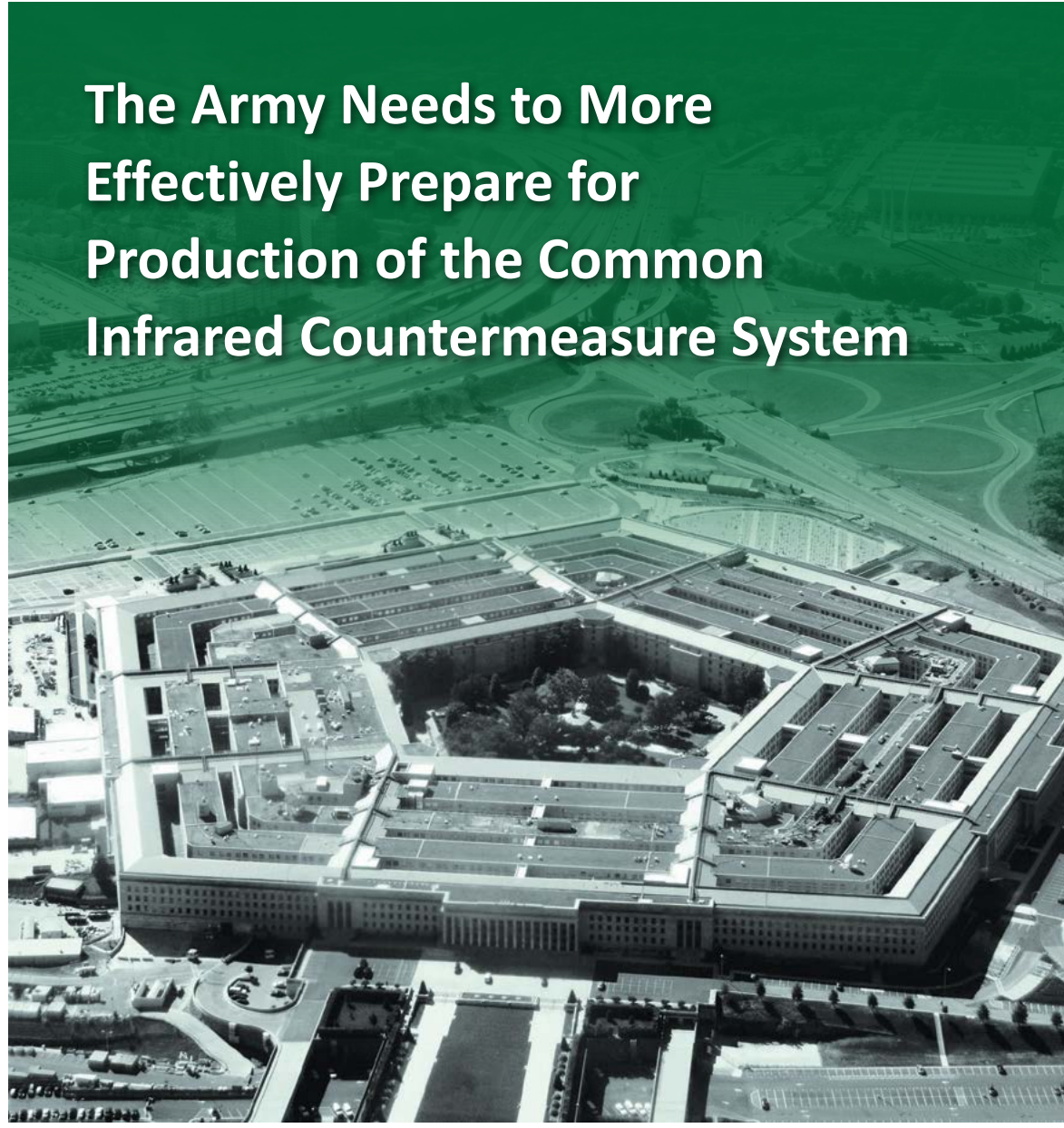


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Inspector General

U.S. Department of Defense

APRIL 26, 2017



The Army Needs to More Effectively Prepare for Production of the Common Infrared Countermeasure System

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Results in Brief

The Army Needs to More Effectively Prepare for Production of the Common Infrared Countermeasure System

April 26, 2017

Objective

We determined whether the Army is effectively preparing the Common Infrared Countermeasure (CIRCM) system for the production phase of the acquisition program. The Army is acquiring the CIRCM system to protect DoD rotary-wing, tilt-rotor, and small fixed-wing aircraft against infrared-guided surface-to-air and air-to-air missiles.

Findings

The Army could more effectively prepare the CIRCM system for production. Specifically, Army management did not:

- adequately define firm system capability requirements (what the system must do to meet its mission) and test planning (Finding A), and
- report progress in meeting system reliability¹ and maintainability requirements (Finding C).

In addition, Defense Contract Management Agency management had not established surveillance of subcontractor efforts (determining contractor progress and identifying any factors that may delay performance) (Finding B).

(FOUO) The Army prepared requirements documents, which communicated system capabilities, and implemented a test plan that does not require CIRCM to demonstrate minimum required system reliability [REDACTED]

¹ Reliability measures the probability that the system will perform its intended function over a specified time period. Reliability must be sufficient to support the warfighting capability requirements within expected operating environments.

Findings (cont'd)

(FOUO) [REDACTED]. The delay in the requirement to fully demonstrate minimum reliability occurred because the Army requirements developer did not expect the CIRCM to demonstrate the minimum reliability requirement before the planned full-rate production decision.

Additionally, the requirements developer established capability requirements that defined the types of infrared missiles most critical for CIRCM to counter to protect aircraft. However, the CIRCM development document allows the requirements developer and the acquisition milestone decision authority to reclassify missiles listed as primary system requirements to a lower priority. Shortfalls in defining firm counter-missile performance requirements occurred because the requirements developer did not follow Joint Chiefs of Staff policy requiring that changes to primary system requirements be validated within the offices of the Joint Chiefs of Staff.

(FOUO) As a result, without demonstrating minimum required system reliability, more frequent system failures could occur, increasing the costs associated with maintaining the system. [REDACTED], before demonstrating that CIRCM can be cost effective and mission capable.

The Army project manager did not report significant difficulties encountered during CIRCM reliability testing in the Defense Acquisition Executive Summary (DAES) report. Reporting of reliability test difficulties did not occur because the CIRCM project manager did not follow Army policy for including a minimum reliability, availability, and maintainability requirement as a required system performance characteristic in the program baseline approved at Milestone B. This milestone commits acquisition managers to developing a specific system for production and fielding. Because the project manager did not report CIRCM reliability deficiencies, he reduced the effectiveness of the Defense Acquisition Executive Summary report as a communication tool to key stakeholders within the Offices of the Secretary of Defense and the Joint Chiefs of Staff. The project manager also limited the ability of the milestone decision authority to manage and oversee the program.



Results in Brief

The Army Needs to More Effectively Prepare for Production of the Common Infrared Countermeasure System

Findings (cont'd)

At the time of the audit, the Commander, Defense Contract Management Agency Chicago Contract Management Office, had not established letters of delegation to provide surveillance over the four subcontractors that were designing and building CIRCМ system components. The Commander had begun negotiations for delegations for three of the four subcontractors based on subcontractor risk and gained approval of letters of delegations for two subcontractors in December 2016 and January 2017. Letters of delegation for subcontractor surveillance help the Defense Contract Management Agency and CIRCМ Project Management Office identify and address contracting problems that can cause reductions to technical performance, cost increases, and schedule delays. Letters of delegation were delayed because the Commander granted a request from CIRCМ program management staff to delay surveillance of subcontractors until after the start of initial production to allow subcontractor processes to develop. As a result, the Defense Contract Management Agency did not have direct access to subcontractor staff and facilities to perform surveillance functions. Instead, Defense Contract Management Agency's monitoring of subcontractors was limited to overseeing how the prime contractor exercised control over the subcontractors.

Recommendations

We recommend that the Commander, Army Aviation Center of Excellence, revise the draft capability production document for the CIRCМ system to require that the system demonstrate the reliability threshold requirement of 214 flight hours before the full-rate production decision.

We recommend that the Project Manager, Aircraft Survivability Equipment:

- update the Test and Evaluation Master Plan to require the CIRCМ system to achieve the system reliability threshold requirement of 214 flight hours before the full-rate production decision; and
- report program progress on demonstrating system reliability.

We recommend that the Vice Chairman, Joint Chiefs of Staff, revise the capability development document for the CIRCМ system to clarify that the requirements developer and the acquisition milestone decision authority must have concurrence from the validation authority before lowering threshold values of any primary system requirement.

We recommend that the Commander, Defense Contract Management Agency, Chicago Contract Management Office, establish letters of delegation with the Commanders of the Defense Contract Management Agency Contract Management Offices appropriate for providing surveillance of the two subcontractors responsible for designing and building the system processor unit and the laser components of the CIRCМ system.

We recommend that the Program Executive Officer for Intelligence, Electronic Warfare, and Sensors establish a control procedure to make sure the reliability, availability, and maintainability requirement and other required cost, schedule, and performance elements are included in the acquisition program baseline.

Management Comments and Our Responses

The Director, Internal Review and Audit Compliance, U.S. Army Training and Doctrine Command, responding for the Commander, Army Aviation Center of Excellence, agreed with the recommendation, stating the Army Aviation Center of Excellence will revise the draft capability production document to require that the system demonstrate the reliability threshold requirement before the full-rate production decision and submit the revised requirement to Headquarters, Department of the Army by June 30, 2017. Therefore, the recommendation is resolved but remains open. We will close this recommendation once we verify that the capability production document has been revised to include the requirement for the system to demonstrate the reliability threshold requirement before the full-rate production decision.



Results in Brief

The Army Needs to More Effectively Prepare for Production of the Common Infrared Countermeasure System

Management Comments (cont'd)

The Project Manager, Aircraft Survivability Equipment, agreed with both recommendations.

For the first recommendation, the project manager stated that the program office has coordinated with the Army Test and Evaluation Command and the Director, Operational Test and Evaluation to update the Test and Evaluation Master Plan to require the CIRCM system to demonstrate the system reliability threshold before the full-rate production decision. Therefore, the recommendation is resolved but remains open. We will close this recommendation once we verify that the Test and Evaluation Master Plan has been revised.

For the second recommendation, the project manager stated that the program office will continue to report program progress on demonstrating system reliability in the quarterly Defense Acquisition Executive Summary Report. Therefore, the recommendation is resolved but remains open. We will close this recommendation once we verify that the program office has reported program progress on demonstrating system reliability in the quarterly Defense Acquisition Executive Summary Report for the third quarter FY 2017.

The J8 Capability and Acquisition Division Rotary Wing/Vertical Lift Lead responding for the Vice Chairman, Joint Chiefs of Staff, agreed with the recommendation, stating the Joint Staff will retain approval authority of any changes to the capability development document. He further stated that the requirements developer will gain concurrence from the validation authority before implementing any primary system requirement changes. Therefore, the recommendation is resolved but remains open. We will close the recommendation once we verify that the validation authority has approved any changes to the capability development document that occurred before the Milestone C production decision scheduled for March 2018.

The Director, Defense Contract Management Agency, responding for the Commander, Defense Contract Management Agency, Chicago Contract Management Office, agreed with the recommendation. The DCMA has issued letters of delegation to provide increased surveillance for the two subcontractors responsible for designing and building the system processor unit and laser components. We verified that the proposed actions were implemented; therefore, the recommendation is closed.

The Program Executive Officer for Intelligence, Electronic Warfare and Sensors agreed with the recommendation, stating that his office will work with the Defense Acquisition Executive to make sure the Milestone C acquisition program baseline is consistent with statutory and regulatory requirements. Additionally, the Program Executive Officer stated that program reporting will include the status of reliability, availability, and maintainability performance requirements. Therefore, the recommendation is resolved but remains open. We will close this recommendation once we verify that the reliability, availability, and maintainability requirement and other required cost, schedule, and performance elements are included in the Milestone C acquisition program baseline.

Please see the Recommendations Table on the following page.

Recommendations Table

Management	Recommendations Unresolved	Recommendations Resolved	Recommendations Closed
Vice Chairman, Joint Chiefs of Staff	None	A.3	None
Program Executive Officer for Intelligence, Electronic Warfare, and Sensors	None	C.1	None
Commander, Army Aviation Center of Excellence	None	A.1	None
Project Manager, Aircraft Survivability Equipment	None	A.2, C.2	None
Commander, Defense Contract Management Agency, Chicago Contract Management Office	None	None	B.1

NOTE: The following categories are used to describe agency management's comments to individual recommendations:

- **Unresolved** – Management has not agreed to implement the recommendation or has not proposed actions that will address the recommendation.
- **Resolved** – Management agreed to implement the recommendation or has proposed actions that will address the underlying finding that generated the recommendation.
- **Closed** – OIG verified that the agreed upon corrective actions were implemented.



INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
4800 MARK CENTER DRIVE
ALEXANDRIA, VIRGINIA 22350-1500

April 26, 2017

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION,
TECHNOLOGY, AND LOGISTICS
VICE CHAIRMAN OF THE JOINT CHIEF OF STAFF
DIRECTOR, OPERATIONAL TEST AND EVALUATION
DIRECTOR, DEFENSE CONTRACT MANAGEMENT AGENCY
AUDITOR GENERAL, DEPARTMENT OF THE ARMY

SUBJECT: The Army Needs to More Effectively Prepare for Production of the Common
Infrared Countermeasure System (DODIG-2017-075)

~~(FOUO)~~ We are providing this report for your information and use. We determined that the Army needs to improve the requirements definition and test planning before producing [REDACTED]. We conducted this audit in accordance with generally accepted government auditing standards.

We considered management comments on a draft of this report when preparing the final report. Comments from the Vice Chairman, Joint Chiefs of Staff; Program Executive Officer for Intelligence, Electronic Warfare, and Sensors; Commander, Army Aviation Center of Excellence; Project Manager, Aircraft Survivability Equipment; and Commander, Defense Contract Management Agency, Chicago Contract Management Office addressed all specifics of the recommendations and conformed to the requirements in DoD Instruction 7650.03.

We appreciate the courtesies extended to the staff. Please direct questions to Ms. Susan Lippolis at (703) 604-9081 (DSN 664-9081).

A handwritten signature in black ink that reads "Troy M. Meyer".

Troy M. Meyer
Principal Assistant Inspector General
for Audit

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Introduction

Objective

We determined whether the Army is effectively preparing the Common Infrared Countermeasure (CIRCM) system for the production phase of the acquisition program. See Appendix A for a discussion of the scope and methodology.

Background

(FOUO) The Under Secretary of Defense for Acquisition, Technology, and Logistics designated the Army CIRCM program as an Acquisition Category ID major defense acquisition program in August 2015.² CIRCM is in the engineering and manufacturing development (development) phase of the acquisition process,

[REDACTED]

[REDACTED].³

The initial production decision starts the production and deployment phase of the acquisition process. DoD guidance states that the purpose of the production and deployment phase is to produce and deliver systems that meet user requirements.⁴ After the initial production decision, acquisition managers may contract for producing the minimum system quantities needed to provide production representative articles for testing and to permit an orderly increase in the production rate sufficient to lead to full-rate production.

Before making the decision to enter full-rate production, the milestone decision authority must review and assess test results on initial production articles to determine whether the system's performance is acceptable. The full-rate production decision authorizes acquisition managers to contract for producing systems at an economic rate for deployment to the field or fleet.

(FOUO) [REDACTED]

² Acquisition category ID is a major defense acquisition program for which the Under Secretary of Defense for Acquisition, Technology, and Logistics estimates eventual total expenditure for research, development, test, and evaluation of more than \$480 million in FY 2014 constant dollars or, for procurement, of more than \$2.79 billion in FY 2014 constant dollars.

³ The purpose of the engineering and manufacturing development phase is to develop, build, and test a product to verify that all operational and derived requirements have been met, and to support production or deployment decisions.

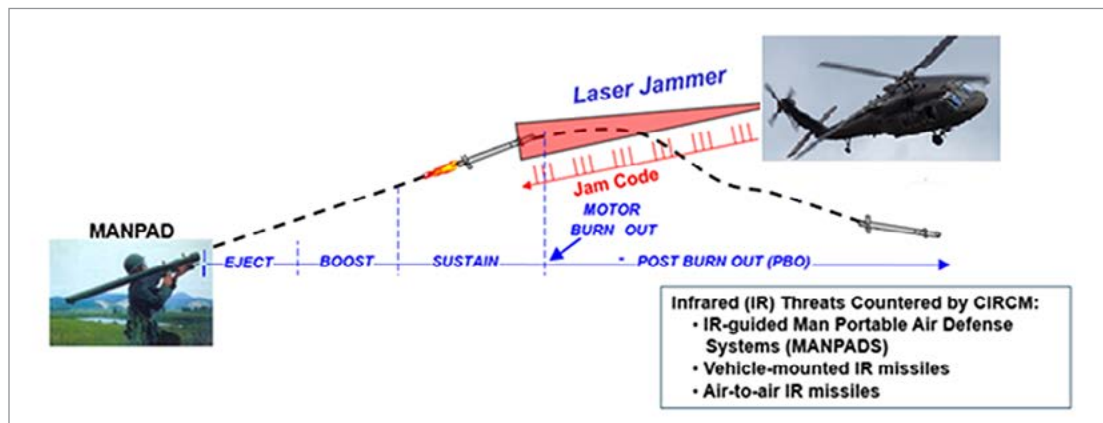
⁴ DoD Instruction 5000.02, "Operation Of The Defense Acquisition System," January 7, 2015.

Mission and System Description

(FOUO) The Army is acquiring the CIRCM system to protect DoD rotary-wing, tilt-rotor, and small fixed-wing aircraft against infrared-guided surface-to-air and air-to-air missiles.

See Appendix B for the specific Army aircraft planned to receive CIRCM. As illustrated in Figure 1, the CIRCM will integrate defensive infrared countermeasure capabilities into existing aircraft, allowing the aircraft to jam and defeat infrared-guided missiles, including those fired by a single individual or several individuals acting as a crew using man-portable launchers.

Figure 1. CIRCM Countering Infrared-Guided Missile



Source: Project Management Office Aircraft Survivability Equipment, Program Executive Office, Intelligence, Electronic Warfare, and Sensors.

Several countries, including the United States, have licenses to produce man-portable air defense systems or their components to protect warfighters and military facilities. However, in the wrong hands, man-portable air defense systems have become a global aviation threat to military aircraft, the commercial aviation industry, and passenger air travel. Man-portable air defense systems are relatively easy to transport, conceal, and use, which makes them weapons of choice to terrorists, criminals, or other non-state actors. In 2011, the U.S. Department of State declared countering the rise in man-portable air defense systems a top U.S. national security priority.

Common Infrared Countermeasure Program Management and Oversight

The following describes the management and oversight responsibilities for CIRCМ.

- The Under Secretary of Defense for Acquisition, Technology, and Logistics is the Defense Acquisition Executive and the milestone decision authority for CIRCМ. As milestone decision authority, the Under Secretary has the authority to approve the entry of the CIRCМ program into acquisition phases discussed under the section “DoD Acquisition Milestones.”
- The Program Executive Officer for Intelligence, Electronic Warfare, and Sensors provides development and acquisition support and is responsible for providing overall guidance for acquiring the CIRCМ system.
- The Project Manager, Aircraft Survivability Equipment (the project manager) is responsible for managing the development and procurement of the CIRCМ system.
- The U.S. Army Aviation Center of Excellence Concepts and Requirement Directorate is the capability developer and represents the U.S. Army user by developing:
 - CIRCМ system requirements, and
 - key operational effectiveness or suitability requirements that must be examined in an operational test and evaluation to determine the system’s capability to perform its mission.
- The Defense Contract Management Agency (DCMA) Chicago Contract Management Office is responsible for providing oversight of the CIRCМ contractor’s performance, specifically, in the areas of quality assurance, contract administration, engineering, software, property, and earned value management.

Funding and Contract Data

(FOUO) [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

⁵ Of the \$3.1 billion, \$0.8 billion is research, development, test, and evaluation funding; and the remaining \$2.3 billion is procurement funding.

⁶ Cost-plus-fixed fee contract is a cost-reimbursement contract that provides for payment to the contractor of a negotiated fee that is fixed at the inception of the contract. A fixed-price-incentive contract is a fixed-price contract that provides for adjusting profit and establishing the final contract price by using a formula based on the relationship of final negotiated total cost to total target cost.

(FOUO) [REDACTED].⁷ [REDACTED]
[REDACTED]
[REDACTED]

DoD Acquisition Milestones

The defense acquisition system uses three milestones to oversee and manage major defense acquisition programs such as CIRCM:

- Milestone A decision approves program entry into the technology maturation and risk reduction phase, which involves developing technologies and reducing risks before committing the resources needed for complete system development;
- Milestone B decision approves entry into the engineering and manufacturing development phase, which commits acquisition managers to developing a specific system for production and fielding; and
- Milestone C decision approves entry into the production and deployment phase, during which the contractor produces system units for fielding.

As a prerequisite to each milestone, the project manager develops a test plan that documents the overall structure and objectives for system testing necessary to evaluate system capabilities.

In December 2011, the Under Secretary of Defense for Acquisition, Technology, and Logistics (the milestone decision authority) approved a Milestone A decision for implementing a technology development contract strategy involving two contractors competing to develop the CIRCM system technology. During the technology maturation and risk reduction phase, the program office performed a preliminary design review in July 2013 to assess the system's capability of meeting the performance requirements.

In August 2015, the milestone decision authority approved a Milestone B decision for CIRCM to enter into the engineering and manufacturing development phase. In October 2016, the program office conducted the critical design review, which is a technical review designed to determine whether a system can proceed into prototype development and testing.

⁷ The A-Kits are the installation units for CIRCM and the B-Kits perform the CIRCM missile countermeasure mission.

(FOUO) [REDACTED]

[REDACTED]

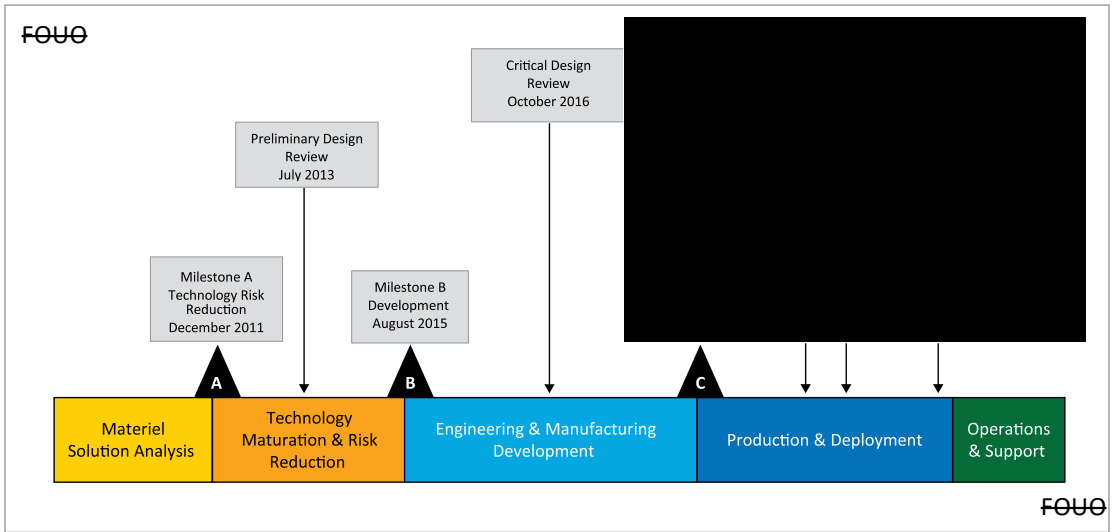
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

(FOUO) Figure 2. Acquisition Milestones for the CIRCM



Source: DoD OIG.

Overall Assessment

The Army could more effectively prepare the CIRCM system for production. Specifically, Army management did not:

- adequately define firm system capability requirements (what the system must do to meet its mission) and test planning (Finding A), and
- report progress in meeting system reliability and maintainability requirements (Finding C).

In addition, at the time of the audit, DCMA management had not established surveillance of subcontractor efforts (determining contractor progress and identifying any factors that may delay performance) (Finding B).

Review of Internal Controls

DoD Instruction 5010.40 requires DoD organizations to implement a comprehensive system of internal controls that provides reasonable assurance that programs are operating as intended and to evaluate the effectiveness of the controls.⁸

We identified internal control weaknesses in defining firm CIRCM capability requirements and in planning testing to demonstrate the system could meet those requirements. We also determined the DCMA had not established surveillance over the four subcontractors that were designing and building CIRCM system components. Furthermore, the project manager was not adequately reporting CIRCM progress in meeting system reliability and maintainability requirements in the Defense Acquisition Executive Summary. We will provide a copy of the report to the senior Army and DCMA officials responsible for internal controls.

⁸ DoD Instruction 5010.40, "Managers' Internal Control Program Procedures," May 30, 2013.

Finding A

Army Did Not Adequately Define System Capability Requirements and Test Planning

(FOUO) The Army prepared requirements documents, which communicated system capabilities, and implemented a test plan that does not require CIRCM to demonstrate minimum required system reliability [REDACTED].⁹ Instead, the program may proceed through the full production decision demonstrating only 70 percent of the reliability needed to meet the minimum system reliability requirement. CIRCM was not required to demonstrate minimum reliability until after the full-rate production decision because the Commander, Army Aviation Center of Excellence (the requirements developer) did not expect the CIRCM to demonstrate the required minimum reliability requirement before the planned full-rate production decision. The planned delay in achieving reliability conflicts with Army acquisition policies stating that programs continuing into full-rate production must demonstrate acceptable system reliability.

(FOUO) Additionally, the requirements developer established capability requirements that defined the types of infrared missiles most critical for CIRCM to counter to protect aircraft. However, the CIRCM development document allows the requirements developer and the acquisition milestone decision authority to reclassify missiles listed as primary system requirements to a lower priority, [REDACTED]. Shortfalls in defining firm counter-missile performance requirements occurred because the requirements developer did not follow Joint Chiefs of Staff (JCS) policy that requires changes to key performance parameters (primary system requirements) be validated within the JCS.

(FOUO) As a result, without demonstrating minimum required system reliability, more frequent system failures could occur, increasing the costs associated with maintaining the system. [REDACTED], before demonstrating that CIRCM can be cost effective and mission capable.

⁹ Reliability measures the probability that the system will perform its intended function over a specified time period. Reliability must be sufficient to support the warfighting capability requirements within expected operating environments.

System Requirements and Test Plans Allow Full-Rate Production Before Achieving Minimum Required Reliability

(FOUO) The Army prepared CIRCM requirements documents, which communicated system capabilities, and implemented a test plan that does not require the project manager to demonstrate that CIRCM meets the minimum required system reliability [REDACTED]. Instead, the approved requirements documents and test plans established a phased

The approved requirements documents and test plan state that the CIRCM program will not have to demonstrate the required minimum reliability of 214 hours until logging 10,000 flight hours after the full-rate production decision.

approach to demonstrating the minimum reliability requirement. This allows the CIRCM program to proceed through the full production decision while demonstrating only 70 percent (150 hours) of the 214 hours mean time between operational mission failures needed to meet the minimum system reliability requirement.¹⁰ Furthermore, the approved requirements documents and test plan state that the CIRCM program will not have to demonstrate the required minimum reliability of 214 hours until logging 10,000 flight hours after the full-rate production decision. CIRCM requirements documents include:

- “Capability Development Document for the Common Infrared Countermeasure Increment: 1,” May 30, 2014 (the development document), which defines the system capability requirements needed for developing a CIRCM system that will provide a safe, operationally effective, suitable, and useful missile defense capability; and
- “Draft Capability Production Document for the Common Infrared Countermeasure Increment: 1,” (the draft production document), which updates and refines the earlier requirements from the development document as needed to support production and deployment of the CIRCM system.

The Test and Evaluation Master Plan for the CIRCM system, June 8, 2015, (test plan) serves as the primary guide for managing the test and evaluation needed to develop and produce the CIRCM system.

¹⁰ Mean time between operational mission failures is the measurement for mission essential equipment to operate without a failure during a defined mission timeline or event.

The Army's planned delay in achieving CIRCM reliability conflicts with Army acquisition policy concerning when acquisition programs should demonstrate minimum required system reliability. According to the Army's acquisition regulation, acquisition programs are expected to meet or exceed their established reliability test threshold before the full-rate production decision.¹¹ In our judgement, the expectation in the Army acquisition regulation is justified because, after the full-rate production decision, Army can contract to produce CIRCM at an economic rate for deployment to the field.

~~(FOUO)~~ The delay in the requirement to fully demonstrate minimum system reliability occurred because, as stated in the requirements document, the requirements developer did not expect the CIRCM to achieve the required 214 hours mean time between operational mission failures before achieving initial operational capability. [REDACTED]

[REDACTED] In addition, the project manager created the test plan based on the capabilities outlined in the requirements documents. Army acquisition policy expects systems to demonstrate acceptable system reliability before continuing into full-rate production. Therefore, we recommend the:

- Commander, Army Aviation Center of Excellence, revise the draft capability production document for the CIRCM system to require the system to demonstrate the system reliability threshold (minimum) requirement of 214 flight hours before the full-rate production decision; and
- Project Manager, Aircraft Survivability Equipment, update the Test and Evaluation Master Plan to require the CIRCM system to achieve the system reliability threshold (minimum) requirement of 214 flight hours before the full-rate production decision.

¹¹ Army Regulation 70-1, "Army Acquisition Policy," July 22, 2011.

Development Document Allows Changes to Primary System Requirements without Going Through the Validation Process

~~(FOUO)~~ The requirements developer established capability requirements that defined the missile types most critical for CIRCM to counter to protect aircraft. However, the CIRCM development document allows the requirements developer and the acquisition milestone decision authority to reclassify missiles listed as primary system requirements to a lower priority. [REDACTED]

The CIRCM development document allows the requirements developer and the acquisition milestone decision authority to reclassify missiles listed as primary system requirements to a lower priority.

The Joint Capabilities Integration and Development System (JCIDS) Manual defines primary system requirements as those requirements considered critical to the development of an effective military capability.¹² The JCIDS Manual states that failure of a system to meet a primary system requirement triggers a review by the validation authority and evaluation of operational risk or system military utility, if the requirement is not met. The review may result in a reevaluation of the program or modification to production increments.

Consistent with the above policy, the JCIDS Manual does not allow the requirements developer and the acquisition milestone decision authority to change primary system requirements without coordinating the changes with the validation authority for the requirements document. Specifically, the JCIDS Manual states that changes to validated primary system requirements require revalidation of the original requirements document. Furthermore, the validation authority must coordinate with the milestone decision authority to make sure the appropriate level of oversight is applied consistently between the requirements definition and systems acquisition processes. The JCS Joint Requirements Oversight Council is the validation authority for Acquisition Category I programs, such as CIRCM.

On November 2, 2016, and January 9, 2017, the audit team met with the staffs of the Commander, Army Aviation Center of Excellence and the JCS Capabilities and Acquisition Division respectively to discuss the missile reclassification provisions in the CIRCM development document. Although no missiles had been reclassified to lower priorities, both the requirements developer and JCS staff agreed that

¹² "Manual for the Operation of the Joint Capabilities Integration and Development System," January 19, 2012.

the development document should not allow future potential reclassification of primary system requirements without coordinating the changes with the validation authority.

Shortfalls in defining firm counter missile performance requirements occurred because the requirements developer established CIRCM requirements without regard for the JCIDS Manual requiring acquisition managers to coordinate any changes to primary system requirements with requirement validation authorities within the Office of the JCS. Therefore, we recommend that the Vice Chairman, JCS, revise the draft capability development document for CIRCM to clarify that the requirements developer and the acquisition milestone decision authority must have concurrence from the Joint Requirements Oversight Council, as validation authority, before lowering threshold (minimum) values of any primary system requirement.

Army Risks Committing to Full-Rate Production Before Demonstrating System Can Be Cost Effective and Mission Capable

(FOUO) Without demonstrating minimum required system reliability and defining firm missile types most critical for CIRCM to counter, more frequent system failures could occur, increasing the costs associated with maintaining the system. [REDACTED]

[REDACTED] before demonstrating that CIRCM can be cost effective and mission capable.

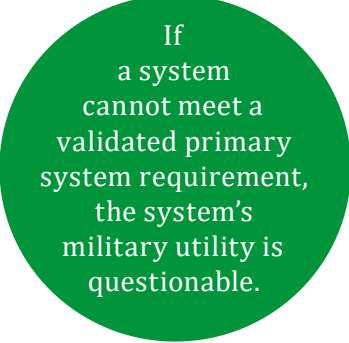
Costs of Not Achieving Minimum Reliability

In a June 2010 memorandum for the Principal Deputy Under Secretary of Defense (Acquisition, Technology, and Logistics), the Director, Operational Test and Evaluation, identified system reliability as a major problem for DoD acquisitions.¹³ The Director explained that poor system reliability increases operating and maintenance costs after systems are fielded because it leads to increased needs for replacement spares, maintenance, and repair parts. Poor reliability also hinders warfighter effectiveness and can essentially render weapons useless. The Director also stated that sustainment costs have five to ten times more impact on total life cycle costs than do Research, Development, Test, and Evaluation costs; unreliable systems have higher sustainment costs because they break more frequently than planned.

¹³ Director Operational Test and Evaluation Memorandum, "State of Reliability," June 30, 2010.

Potential for Mission Shortfalls

If a system cannot meet a validated primary system requirement, the system's military utility is questionable. The military utility of the CIRCM system is based on its ability to reliably protect DoD rotary-wing, tilt-rotor, and small fixed-wing aircraft against infrared-guided surface-to-air and air-to-air missiles. Additionally, approved system requirements documents must have the information necessary to support development or production of one or more increments of a capability solution.



If a system cannot meet a validated primary system requirement, the system's military utility is questionable.

Recommendations, Management Comments, and Our Response

Recommendation A.1

We recommend that the Commander, Army Aviation Center of Excellence, revise the draft capability production document for the Common Infrared Countermeasure system to require that the system demonstrate the reliability threshold (minimum) requirement of 214 flight hours before the full-rate production decision.

Commander, Army Aviation Center of Excellence

The Director, Internal Review and Audit Compliance, U.S. Army Training and Doctrine Command, responding for the Commander, Army Aviation Center of Excellence, agreed with the recommendation. The Director stated that the Army Aviation Center of Excellence will revise the draft capability production document to require that the system demonstrate the reliability threshold requirement of 214 flight hours before the full-rate production decision. In addition, the Director stated that the revised production document will be submitted to Headquarters, Department of the Army no later than June 30, 2017.

Our Response

The Director addressed the specifics of the recommendation; therefore, the recommendation is resolved but remains open. We will close this recommendation once we verify that the production document has been revised to include the requirement that the system demonstrate the reliability threshold requirement of 214 flight hours before the full-rate production decision.

Recommendation A.2

We recommend that the Project Manager, Aircraft Survivability Equipment, update the Test and Evaluation Master Plan to require the Common Infrared Countermeasure system to achieve the system reliability threshold (minimum) requirement of 214 flight hours before the full-rate production decision.

Project Manager, Aircraft Survivability Equipment

The Project Manager, Aircraft Survivability Equipment, agreed with the recommendation. The project manager stated that the program office has coordinated with the Army Test and Evaluation Command and the Director, Operational Test and Evaluation, to update the Test and Evaluation Master Plan to require the CIRCM system to demonstrate the system reliability threshold mean time between operational mission failure requirement of 214 hours before the full-rate production decision.

Our Response

The project manager addressed the specifics of the recommendation; therefore, the recommendation is resolved but remains open. We will close this recommendation once we verify that the Test and Evaluation Master Plan has been revised to include the requirement for the system to demonstrate the reliability threshold requirement of 214 flight hours before the full-rate production decision.

Recommendation A.3

We recommend that the Vice Chairman, Joint Chiefs of Staff, revise the capability development document for the Common Infrared Countermeasure system to clarify that the requirements developer and the acquisition milestone decision authority must have concurrence from the Joint Requirements Oversight Council, as validation authority, before lowering threshold (minimum) values of any primary system requirement.

Vice Chairman, Joint Chiefs of Staff

The J8 Capability and Acquisition Division Rotary Wing/Vertical Lift Lead responding for the Vice Chairman, Joint Chiefs of Staff, agreed with the recommendation, stating that the Joint Staff will retain approval authority of any changes to the capability development document. He further stated that the requirements developer will gain concurrence from the validation authority before implementing any changes to primary system requirements.

Our Response

The J8 Lead addressed the specifics of the recommendation. While he does not plan to revise the existing capability development document, the Joint Staff will retain approval authority for any changes to the capability development document and that the requirements developer must gain validation authority approval before changing any primary system requirements. Therefore, this recommendation is resolved but remains open. We will close the recommendation once we verify that the validation authority has approved any changes to the capability development document before the Milestone C decision, scheduled for March 2018.

Finding B

Defense Contract Management Agency Needs to Establish Surveillance of Subcontractor Efforts

At the time of the audit, the Commander, DCMA Chicago Contract Management Office (CMO), had not established letters of delegation to provide surveillance over the four subcontractors that were designing and building CIRCM system components. The Commander had begun negotiations for delegations for three of the four subcontractors based on subcontractor risk. Subsequently, two letters of delegation were approved in December 2016 and January 2017.

Letters of delegation were delayed because the Commander, DCMA Chicago CMO, who was seeking to maintain positive relations with the project office, granted a request from CIRCM project management staff to delay surveillance of subcontractors until after the start of initial production, to allow subcontractor processes to develop.

~~(FOUO)~~ As a result, the DCMA Chicago CMO did not have access to subcontractor staff and facilities to perform surveillance functions and could not report directly to the CIRCM project manager issues impeding the subcontractors' progress in designing and building CIRCM system components. DCMA monitoring of subcontractors was limited to overseeing how the prime contractor exercised control over the subcontractors. [REDACTED]

[REDACTED]

Together, the planned value of the work that the four subcontractors are to perform during engineering and manufacturing development is \$58 million, or 41 percent of the planned contract cost.

Defense Contract Management Agency Had Not Established Letters of Delegation to Provide Surveillance of Subcontractors

At the time of the audit, in October 2016, the Commander, DCMA Chicago CMO, had not established letters of delegation with other DCMA CMO Commanders to provide surveillance over the four CIRCM subcontractors responsible for designing and building the four CIRCM system components. However, negotiations for delegations for three of the four subcontractors were ongoing based on subcontractor risk. Letters of delegation for subcontractor surveillance help the DCMA and CIRCM Project Management Office identify and address contracting problems that can cause reductions to technical performance, cost increases, and schedule delays.

Letters of delegation for subcontractor surveillance help the DCMA and CIRCM Project Management Office identify and address contracting problems that can cause reductions to technical performance, cost increases, and schedule delays.

Subcontractor Responsibilities for Designing and Building the Common Infrared Countermeasure System

The four subcontractors working under the CIRCM contract are responsible for designing and building the four CIRCM system components. System components include the following:

- an installation unit that enables CIRCM to integrate with host aircraft,
- two pointer-trackers that scan the air and identify potential aircraft threats,
- a system processor unit that analyzes information from the pointer tracker, and
- two lasers that fire beams to jam incoming missiles to protect host aircraft.

These components make up two different CIRCM kits. The A-kit is the installation unit, and the B-kit includes two pointer-trackers, the system processor unit, and two lasers, which the CIRCM prime contractor will assemble together. The B-kit performs the CIRCM missile countermeasure mission. Figure 3 shows the system components that make up the B-Kit.

Figure 3. B-Kit for the CIRCM



Source: Project Management Office Aircraft Survivability Equipment, Program Executive Office, Intelligence, Electronic Warfare, and Sensors.

Requirement for Letters of Delegation for Subcontractor Surveillance

Letters of delegation enable the DCMA to perform subcontractor surveillance activities. Subcontractor surveillance is a critical part of the overall contract administration services that DCMA provides to project managers to support decision-making events. In accordance with the Federal Acquisition Regulation, the DCMA provides project managers with objective and actionable contract, technical, cost, schedule, and performance data through a program support team consisting of multifunctional specialists.¹⁴ The DCMA program support specialists include engineering, contracting, software, industrial, earned value, and quality assurance.

DCMA policy guides the CMO Commander in meeting the Federal Acquisition Regulation requirements. The DCMA policy requires a CMO Commander to assign a program integrator to each prime contract for Acquisition Category I programs.^{15, 16} The DCMA program integrator leads the program support team in performing program surveillance activities. The surveillance activities include analysis of contract cost, schedule, and technical progress.

Under DCMA policy, the CMO Commander surveilling the prime contractor is also responsible for determining the need for surveillance at major or critical program suppliers (subcontractors) and for negotiating support from other DCMA CMO Commanders to perform this surveillance.¹⁷ These negotiations result in letters of delegation, which detail the surveillance activities the supporting Commanders will perform at subcontractor facilities.

¹⁴ Federal Acquisition Regulation Subpart 42.3, Contract Administration Office Functions.

¹⁵ Acquisition Category I are major defense acquisition programs for which the Under Secretary of Defense for Acquisition, Technology, and Logistics estimates eventual total expenditure for research, development, test, and evaluation of more than \$480 million in FY 2014 constant dollars or, for procurement, of more than \$2.79 billion in FY 2014 constant dollars. Acquisition Category I programs have two sub-categories: Acquisition Category ID and Acquisition Category IC.

¹⁶ Defense Contract Management Agency Instruction 205, "Major Program Support," December 10, 2014.

¹⁷ Major program suppliers include subcontractors that represent a significant percentage of the contract acquisition cost. Critical program suppliers are subcontractors whose failure to perform can significantly diminish program success.

DCMA policy mandates that the program integrator, with support from the program support teams at the prime and subcontractor locations, independently assess contract performance, management, and production in a monthly program assessment report (PAR). The CMO Commander is responsible for approving the PAR before releasing the reports to program stakeholders, such as the milestone decision authority and the project manager. The project manager uses the PARs to monitor contract cost, schedule, and performance, and highlight problems in the contractor's and subcontractor's processes that could increase program cost, delay schedule, and reduce performance.

The information contained in the PAR is derived from DCMA access and oversight of contractor and subcontractor staff and facilities. In the case of CIRCM, the program integrator only had direct access to the prime contractor and therefore had to rely on information from the prime contractor and the CIRCM Project Management Office to analyze and report on program difficulties at the subcontractor level. In recent PARs, DCMA discussed difficulties it was made aware of at the subcontractor level that adversely affected the prime contractor's ability to meet contract schedule and performance requirements.

Program Integrator Analysis of Subcontractor Delivery Delays

(FOUO) [REDACTED]

[REDACTED]¹⁸ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Delays in Delivering A-Kits

(FOUO) The CIRCM engineering and manufacturing development contract requires the prime contractor to deliver five A-kits in October 2016 and three additional A-kits in February 2017. [REDACTED]

[REDACTED]

[REDACTED]:

- (FOUO) [REDACTED]
- [REDACTED]
- [REDACTED]

¹⁸ DCMA CIRCM PAR, October 2016, "For the Reporting Period of September 1 – September 30, 2016, EVM Data End of Period: August 26, 2016."

- (FOUO) [REDACTED]

Delays in Delivering B-Kits

(FOUO) The CIRCM engineering and manufacturing development contract requires the prime contractor to deliver 21 B-kits by February 2017, including 7 in June 2016, 5 in July 2016, and 9 in February 2017. [REDACTED]

[REDACTED]

Program Management Office Requested Delaying Surveillance of Subcontractors

The Commander, DCMA Chicago CMO, delayed establishing letters of delegation to provide surveillance over subcontractors because the Commander granted the CIRCM Hardware Integrated Program Team Lead’s request to delay surveillance of subcontractors until after the start of initial production to allow subcontractor processes to develop. The Army awarded the CIRCM development contract to the prime contractor on August 28, 2015, with DCMA Chicago CMO as the contract administration office. A contract award protest caused the prime contractor to stop work on CIRCM from September 2015 until November 2015, which also caused DCMA to stop CIRCM contract administration functions during this time.

¹⁹ DCMA CIRCM PAR, September 2016, “For the Reporting Period of August 1 – August 31, 2016, EVM Data End of Period: July 29, 2016.”

DCMA policy mandates that the CMO must perform the following actions for Acquisition Category I program contracts. These actions help the CMO determine and document program risk prior to establishing letters of delegation:

- review the contract and determine contract requirements;
- determine program support team requirements for the prime contractor and subcontractor, and establish a program support team;
- establish an initial program risk rating based on technical, cost, and schedule risk;
- develop a program support plan to outline planned surveillance events at the prime contractor and subcontractor facilities; and
- establish a memorandum of agreement, if required, with the program management office.

DCMA personnel stated that the CMO completed all of the necessary actions to determine subcontractor risk using the integrated baseline review they finished in April 2016. The CMO could have then established letters of delegation any time after the integrated baseline review in April 2016.

In the June 2016 PAR, DCMA reported the CIRCM Program Lead's request to delay surveillance of subcontractors.²⁰ On December 5, 2016, the DCMA program integrator responsible for surveilling the CIRCM prime contractor told the audit team that there was no technical reason behind DCMA's decision to delay direct surveillance of the subcontractors to allow their processes to develop. More specifically, the program integrator told the audit team that DCMA wanted to maintain a positive working relationship with the project management office and therefore agreed to delay surveillance of subcontractors. According to the Government Accountability Office, effective management planning and action, such as establishing letters of delegation to oversee system design and development, can minimize potential cost increases, schedule delays, and technical performance that may be associated with program immaturities.²¹ We determined that DCMA surveillance is critical to help program stakeholders monitor and proactively identify and address program issues. In our judgement, DCMA surveillance is even more critical when subcontractor processes are not fully developed, such as the case with CIRCM.

²⁰ DCMA CIRCM PAR, June 2016, "For the Reporting Period of May 1–May 31, 2016, EVM Data End of Period: April 29, 2016."

²¹ GAO 16-410G, "Technology Readiness Assessment Guide: Best Practices for Evaluating the Readiness of Technology for Use in Acquisition Programs and Projects," August 11, 2016.

The DCMA’s program support plan for CIRCM, which outlines the approach for conducting surveillance for CIRCM, identified all four of the CIRCM subcontractors as “major or critical” suppliers.²² DCMA was negotiating letters of delegation for three of the four subcontractors as of August 2016 and planned to establish the delegations by October 2016. Since August 2016, DCMA determined that it would also establish a letter of delegation for the remaining subcontractor. As of January 24, 2017, DCMA Chicago CMO had established letters of delegations for two subcontractors. Therefore, we recommend the Commander, DCMA Chicago CMO, follow DCMA policy to establish letters of delegation with the Commanders of the DCMA CMOs appropriate for providing surveillance of the two subcontractors responsible for designing and building the system processor unit and laser components of the B-kit that comprise CIRCM system.

The DCMA’s program support plan for CIRCM, which outlines the approach for conducting surveillance for CIRCM, identified all four of the CIRCM subcontractors as “major or critical” suppliers.

Defense Contract Management Agency Could Not Effectively Analyze and Report on Subcontractor Progress

Without letters of delegation, the Commander, DCMA Chicago CMO, did not have direct access to the subcontractors to help in providing the CIRCM project manager with timely, value-added surveillance and analysis regarding progress in designing and building CIRCM systems components. Specifically,

DCMA’s monitoring of subcontractors was limited to overseeing how the prime contractor exercised control over the subcontractors.

DCMA Chicago CMO did not have letters of delegation that would have allowed DCMA specialists direct access to subcontractor staff and facilities to perform surveillance functions. Instead, DCMA’s monitoring of subcontractors was limited to overseeing how the prime contractor exercised control over the subcontractors. However, we determined the DCMA Chicago CMO planned to establish letters of delegation because the CMO determined subcontractor risk was significant enough that DCMA direct access was necessary.

²² “CIRCM-EMD Program Support Plan,” August 19, 2016.

(FOUO) [REDACTED]
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 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]

In our judgement, with direct and continuing access to subcontractors, DCMA could have given the project manager more timely and insightful advice and analysis relating to subcontractor delays, which would have allowed the project manager to take earlier action to mitigate the delays.

Project management personnel stated that the planned value of the work that the four subcontractors will perform during CIRCM engineering and manufacturing development is \$58 million, or 41 percent, of the planned cost of the development contract.

Defense Contract Management Agency Has Started Developing Letters of Delegation

During our audit, the Commander, DCMA Chicago CMO, was working to complete negotiations with other CMO Commanders to establish letters of delegation for the four subcontractors responsible for designing and building the four CIRCM system components. On December 6, 2016, DCMA Chicago CMO submitted a quality assurance letter of delegation for inspection of A-kits built by one of the subcontractors. The supporting DCMA CMO accepted the letter of delegation on December 9, 2016.

The Commander, DCMA Chicago CMO, was working to complete negotiations with other CMO Commanders to establish letters of delegation for the four subcontractors responsible for designing and building the four CIRCM system components.

On January 12, 2017, the Commander, DCMA Chicago CMO, submitted a multi-functional letter of delegation for the pointer-tracker subcontractor. The supporting DCMA CMO accepted the letter of delegation on January 17, 2017.

²³ DCMA CIRCM PAR, October 2016, "For the Reporting Period of September 1 – September 30, 2016, EVM Data End of Period: August 26, 2016."

The DCMA Chicago CMO staff stated DCMA has also begun working on letters of delegation for surveilling the subcontractors for the system processor unit and the laser, but had not completed either letter of delegation as of January 24, 2017.

Recommendation, Management Comments, and Our Response

Recommendation B.1

We recommend that the Commander, Defense Contract Management Agency Chicago Contract Management Office, follow procedures provided in Defense Contract Management Agency Instruction 205, “Major Program Support,” December 10, 2014, to establish letters of delegation with the Commanders of the Defense Contract Management Agency Contract Management Offices appropriate for providing surveillance of the two subcontractors responsible for designing and building the system processor unit and laser components of the B-kit that comprise the Common Infrared Countermeasure system.

Defense Contract Management Agency

The Director, DCMA, responding for the Commander, DCMA Chicago CMO, agreed with the recommendation. The Director stated that DCMA issued letters of delegation to provide increased surveillance for the two subcontractors responsible for designing and building the system processor unit and laser components. The Director further stated that, as of February 14, 2017, both letters of delegation were accepted.

Our Response

Comments from the Director addressed all specifics of the recommendation; therefore, this recommendation is resolved. We closed this recommendation since we verified that the DCMA implemented the recommended actions.

Finding C

Army Needs to Report on Progress in Meeting System Reliability Requirements

The project manager did not report significant difficulties encountered during CIRCM reliability testing in the Defense Acquisition Executive Summary (DAES). Specifically, the difficulties included delays in conducting planned reliability testing and shortfalls in demonstrating system reliability. As of August 2016, key reliability problems unreported in the DAES report included that the CIRCM contractor was behind schedule in both conducting reliability testing and demonstrating reliability growth. Specifically the contractor had:

- conducted only 28.5 percent of scheduled hours of reliability growth testing, and
- demonstrated only 54.3 percent of scheduled reliability growth, measured in mean time between failures.²⁴

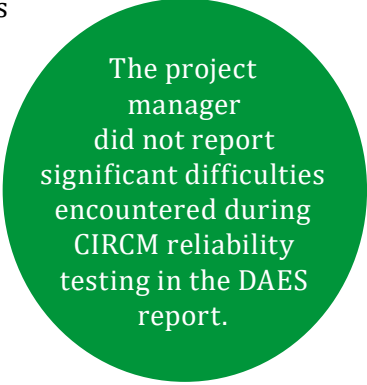
The project manager did not report reliability test difficulties because the CIRCM project manager did not follow Army policy for including a minimum reliability, availability, and maintainability (RAM) requirement as a required system performance characteristic in the acquisition program baseline (the program baseline) approved at Milestone B.²⁵ Program officials stated that omitting the reliability requirement was an oversight by the project manager, who drafted the program baseline, and the Program Executive Officer and the Army Acquisition Executive, who reviewed and approved the program baseline. Because the project manager did not report on CIRCM reliability deficiencies, he reduced the effectiveness of the DAES report to key stakeholders within the Offices of the Secretary of Defense and the Joint Staff. The project manager also limited the ability of the milestone decision authority to manage and oversee the program and make fully informed decisions.

²⁴ For the contractor, mean time between failures is a measure of the total operating time on the system against the total number of failures. Because it does not measure system reliability during mission events, the Army considers 3.25 hours of mean time between failures as equal to 1 hour of mean time between operational mission failures.

²⁵ Army Regulation 70-1, "Army Acquisition Policy," July 22, 2011.

Inadequate Reporting on System Reliability

The project manager did not report significant difficulties encountered during CIRCM reliability testing in the DAES report, including delays in conducting planned reliability growth testing and shortfalls in demonstrating system reliability. CIRCM testers use reliability growth testing to uncover reliability problems by testing the system under operationally realistic environmental conditions.



The project manager did not report significant difficulties encountered during CIRCM reliability testing in the DAES report.

We reviewed prime contractor test reports and questioned project office staff, and determined that, as of August 2016 (the end of the initial phase of reliability testing on CIRCM prototypes), the key reliability problems unreported in the DAES report included that the CIRCM contractor was behind schedule in both conducting reliability testing and demonstrating reliability growth. Specifically the prime contractor had only:

- conducted 717 hours (28.5 percent) of 2,520 scheduled hours of reliability growth testing, and
- demonstrated a reliability of 239 hours mean time between failures, which was 54.3 percent of the reliability 440 hours planned for demonstration during the initial phase of reliability testing.

Project Office staff attributed delays in conducting reliability growth testing to the lack of a sufficient number of CIRCM prototypes for testing and limited access to test chambers.

On December 12, 2016, the Deputy Product Manager for Infrared Countermeasures (within the project manager's office) notified the audit team that the prime contractor had accomplished 258 hours of additional reliability testing as part of the second phase of reliability testing on CIRCM prototypes. However, because an unexpected number of test chambers and CIRCM requirement failures had occurred, the contractor put the second phase of reliability testing on hold. The Deputy Product Manager then stated that the contractor was performing root cause analysis regarding the failures.

The Defense Acquisition Guidebook states that the purpose of the DAES report is to provide a means for identifying and addressing potential and actual program issues that may impact the project manager's on-time and on-schedule delivery of promised capabilities to the warfighter. The DoD Instruction 5000.02 requires program managers for Acquisition Category ID programs, such as CIRCM, to submit

DAES reports quarterly, after Milestone B program initiation.^{26, 27} DAES reporting includes progress in achieving system performance requirements, as documented in the program baseline. The program baseline is an agreement between the project manager and the milestone decision authority that contains schedule, performance, and cost requirements that are the basis for satisfying an identified mission need.

~~(FOUO)~~ Program managers should report difficulties in meeting reliability requirements in the DAES due to the impact these difficulties can make in meeting system performance requirements. Although the DCMA reported system reliability failures in the DAES report dated December 1, 2016, the project manager did not report on ongoing CIRCM reliability issues in either the December DAES or the previous DAES dated August 25, 2016. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Army Policy for Establishing Program Baselines Not Followed

The project manager did not report CIRCM reliability problems in the DAES report because he did not follow Army policy for including a minimum RAM requirement as a required system performance characteristic in the program baseline approved at Milestone B.^{28, 29, 30} Program officials stated that the omission of the RAM requirement was an oversight by the project manager, who drafted the program baseline, and the Program Executive Officer for Intelligence, Electronic Warfare, and Sensors and the Army Acquisition Executive, who reviewed and approved the program baseline. The project manager included a threshold RAM requirement in the program test plan, but not in the program baseline.

The Army established the policy for including a minimum reliability requirement from the development document in the program baseline because of reliability problems with previous acquisition programs. According to Army research, historical data showed four out of five U.S. Army systems failed to achieve

²⁶ DoD Instruction 5000.02, "Operation Of The Defense Acquisition System," January 7, 2015.

²⁷ Acquisition category ID is a major defense acquisition program for which the Under Secretary of Defense for Acquisition, Technology, and Logistics is the milestone decision authority and estimated eventual total expenditure for research, development, test, and evaluation is more than \$480 million in FY 2014 constant dollars or, for procurement, more than \$2.79 billion in FY 2014 constant dollars.

²⁸ Army Regulation 70-1, "Army Acquisition Policy," July 22, 2011.

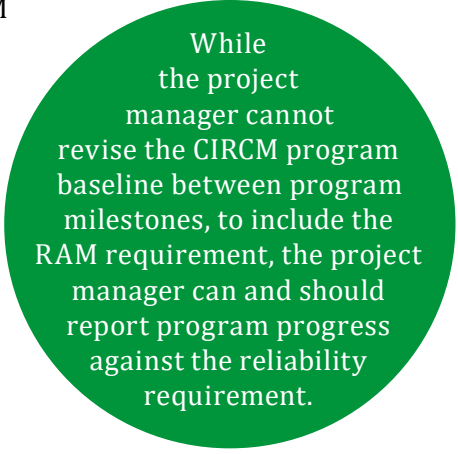
²⁹ A requirement imposed on acquisition systems to ensure they are operationally ready for use when needed, will successfully perform assigned functions, and can be economically operated and maintained within the scope of logistics concepts and policies.

³⁰ This milestone commits acquisition managers to developing a specific system for production and fielding.

their reliability requirements, resulting in significant penalties for system availability, life cycle costs, and schedule delays.³¹ Establishing a minimum reliability requirement in the program baseline obligates the project manager to report regularly to the milestone decision authority for CIRCM on progress in meeting program reliability thresholds. Therefore, we recommend the Program Executive Officer for Intelligence, Electronic Warfare, and Sensors establish a control procedure, such as using a checklist, to make sure the RAM requirement and other required cost, schedule, and performance elements are included in the program baseline.

The Defense Acquisition Guidebook states that project managers must report progress against the performance values in the approved program baseline. Because the CIRCM baseline did not mention reliability, the project manager was not motivated to report reliability problems. Additionally, the project manager cannot revise the program baseline because the Defense Acquisition Guidebook states that approved acquisition baselines are only revised between program milestones when there has been a “...major program restructure that is fully funded and approved by the MDA [milestone decision authority], or that occurs as a result of a program deviation (breach), that is primarily the result of external causes beyond the control of the PM [program manager].”

While the project manager cannot revise the CIRCM program baseline between program milestones to include the RAM requirement, the project manager can and should report program progress against the reliability requirement. Reporting is still possible because the program baseline for the CIRCM does include the primary system requirement for sustainment operational availability. JCIDS Manual states that meeting the primary system requirement for sustainment ensures that systems have an adequate capability for supporting operational missions. Furthermore, the guidance states that system reliability is an element of the sustainment operational availability requirement.³² Reliability contributes to meeting the minimum sustainment requirement, by measuring the degree to which a system will perform



While the project manager cannot revise the CIRCM program baseline between program milestones, to include the RAM requirement, the project manager can and should report program progress against the reliability requirement.

³¹ Assistant Secretary of the Army for Acquisition, Logistics, and Technology Memorandum “Improving the Reliability of U.S. Army Materiel Systems,” June 26, 2011.

³² “Manual for the Operation of the Joint Capabilities Integration and Development System (JCIDS),” February 12, 2015.

and not fail under specific conditions. Therefore, we recommend the CIRCM project manager continue to report program progress on demonstrating system reliability in the quarterly DAES Report as part of the efforts to achieve the sustainment operational availability requirement established in the program baseline.

Reduced Communication to Key Stakeholders

By not reporting CIRCM reliability problems, the project manager hindered the ability of the milestone decision authority to manage and oversee the program and make fully informed decisions. The project manager also reduced the effectiveness of the DAES report as a communication tool to 16 key stakeholders within the Offices of the Secretary of Defense and the Joint Staff. Appendix C provides a listing of the key stakeholders that receive the DAES report according to the Defense Acquisition Guidebook. These acquisition-related stakeholders use the DAES as a tool to track and evaluate program progress in the functional areas for which they are responsible, including resource planning, research and engineering, program costs, test and evaluation, contracting, and manufacturing.



When program managers provide complete reporting, the DAES report enables the milestone decision authority to fulfill statutory requirements to manage and oversee major defense acquisition programs.

When program managers provide complete reporting, the DAES report enables the milestone decision authority to fulfill statutory requirements to manage and oversee major defense acquisition programs. The DAES also facilitates communication between key stakeholders in Office of the Secretary of Defense, Office of the Joint Staff, and the DoD Components and their program offices. Failure to report system issues to DAES hinders the milestone decision authority and other key stakeholders in identifying and addressing, as early as possible, potential and actual program issues that may impact the on-schedule delivery of promised capabilities to the warfighter.

Recommendations, Management Comments, and Our Response

Recommendation C.1

We recommend that the Program Executive Officer for Intelligence, Electronic Warfare, and Sensors establish a control procedure, such as using a checklist, to make sure the reliability, availability, and maintainability requirement and other required cost, schedule, and performance elements are included in the acquisition program baseline.

Program Executive Officer for Intelligence, Electronic Warfare, and Sensors

The Program Executive Officer for Intelligence, Electronic Warfare, and Sensors agreed with the recommendation, stating that his office will work with the Defense Acquisition Executive to make sure the Milestone C acquisition program baseline is consistent with statutory and regulatory requirements. Additionally, the Program Executive Officer asserted that his office will verify that performance requirements are accurately traced to operational requirements in the Test and Evaluation Master Plan and other program documents as required. Further, the Program Executive Officer stated that program reporting will include the status of RAM performance requirements.

Our Response

The Program Executive Officer addressed the specifics of the recommendation; therefore, the recommendation is resolved but remains open. We will close the recommendation once we verify that the reliability, availability, and maintainability requirement and other required cost, schedule, and performance elements are included in the Milestone C program baseline.

Recommendation C.2

We recommend that the Project Manager, Aircraft Survivability Equipment, continue to report program progress on demonstrating system reliability in the quarterly Defense Acquisition Executive Summary Report as part of the efforts to achieve the sustainment operational availability requirement established in the acquisition program baseline.

Project Manager, Aircraft Survivability Equipment

The Project Manager, Aircraft Survivability Equipment, agreed with the recommendation, stating that the program office will continue to report program progress on demonstrating system reliability in the quarterly DAES as part of the efforts to achieve the sustainment operational availability requirement in the acquisition program baseline.

Our Response

The Project Manager addressed the specifics of the recommendation; therefore, the recommendation is resolved but remains open. We will close the recommendation once we verify that the program office has reported program progress on demonstrating system reliability in the DAES Report for the third quarter of FY 2017.

Appendix A

Scope and Methodology

We conducted this performance audit from August 2016 through March 2017 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

We interviewed personnel and performed fieldwork at the following organizations:

- Assistant Secretary of the Army for Acquisition, Logistics, and Technology, Pentagon, Washington, D.C.;
- Project Manager, Aircraft Survivability Equipment, Huntsville, Alabama;
- Army Evaluation Center, U.S. Army Test and Evaluation Command, Aberdeen Proving Ground, Maryland;
- U.S. Army Aviation Center of Excellence, Fort Rucker, Alabama;
- Defense Contract Management Agency Chicago, Arlington Heights, Illinois; and
- Director, Operational Test and Evaluation, Pentagon, Washington, D.C.

We collected, reviewed, and analyzed documents dated from November 2003 through January 2017. We reviewed the CIRCM acquisition strategy, capability requirements documents, test and evaluation master plan, program assessment reports, and contract, including all contract modifications.

To determine whether the Army was effectively preparing the CIRCM for the initial production decision, we compared the program planning and reporting documents with the policies and guidance in the following DoD and Army issuances:

- Chairman of the Joint Chiefs of Staff Instruction, “Joint Capabilities Integration and Development System,” January 10, 2012 and January 23, 2015 (JCS Instructions 3170.01H&I);
- “Manual for the Operation of the Joint Capabilities Integration and Development System,” January 19, 2012 and February 12, 2015;
- DoD Instruction 5000.02, “Operation of the Defense Acquisition System,” December 8, 2008 and January 7, 2015;
- “Defense Acquisition Guidebook,” September 16, 2013;

- Army Regulation 70-1, “Research, Development, and Acquisition: Army Acquisition Policy,” July 22, 2011; and
- DCMA Instruction 205, “Major Program Support,” December 10, 2014.

Use of Computer-Processed Data

We did not use computer-processed data to perform this audit.

Prior Coverage

No prior coverage has been conducted on CIRCM program during the last 5 years.

Appendix B

Aircraft Planned to Receive the Common Infrared Countermeasure System

(FOUO) [REDACTED]
[REDACTED]
[REDACTED]

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Appendix C

DoD Stakeholders Receiving the Defense Acquisition Executive Summary Report

The following DoD officials, offices, and agencies receive the DAES Report.

- Office of the Director of National Intelligence
- Under Secretary of Defense for Acquisition, Technology, and Logistics
 - Office of the Assistant Secretary of Defense for Logistics and Materiel Readiness
 - Office of the Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base Policy
 - Deputy Director, Acquisition Resources and Analysis/Resource Analysis
 - Deputy Director, Acquisition Resources and Analysis/Acquisition Management
 - Defense Procurement and Acquisition Policy Directorate
 - International Cooperation Directorate
- Under Secretary of Defense (Comptroller)/Chief Financial Officer
- Under Secretary of Defense for Personnel and Readiness
- Office of the Joint Chiefs of Staff
- Director of Cost Assessment and Program Evaluation
- Director of Operational Test and Evaluation
- Deputy Assistant Secretary of Defense for Systems Engineering
- Defense Contract Management Agency
- Deputy Assistant Secretary of Defense for Developmental Test and Evaluation
- Overarching Integrated Product Team Lead

Management Comments

Vice Chairman, Joint Chiefs of Staff



THE JOINT STAFF
FORCE STRUCTURE, RESOURCES
AND ASSESSMENT DIRECTORATE, J-8
WASHINGTON, DC

CAD: WB DDRA _____

3 April 2017
S: 6 April 2017

TO: J-8 - DDRA

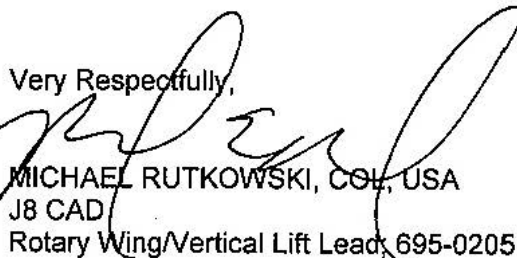
SUBJ: DoD IG CIRCM Report

*Internal Staffing DOC
Will Remain at DDRA/JS
CONCUR*

1. **Purpose:** Respond to DoD IG request for JS review of CIRCM CDD if any changes to requirements/CDD docs.
2. **BLUF:** DoD IG is looking for concurrence on recommendation A.3.
3. **Discussion:** Comment on below (A.3)
4. **Recommendation:** CONCUR with comment below:

The Joint Staff as recommended will retain approval authority of any changes to the CIRCM capability development document (CDD). The Material Developer will gain concurrence from the Joint Requirements Oversight Council, as validation authority, before implementing any primary system requirement changes.

The Joint Staff continues to monitor the progress of Aviation Survivability Equipment (ASE) as a whole across all services and supports the DoD IG's concern of procuring technologically advanced reliable ASE systems to combat the growing proliferation of highly capable MANPAD missiles across the globe by our enemies and keeping our aircrews safe.

Very Respectfully,

MICHAEL RUTKOWSKI, COL, USA
J8 CAD
Rotary Wing/Vertical Lift Lead, 695-0205

11 April 2017

Program Executive Officer for Intelligence, Electronic Warfare and Sensors

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REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
PROGRAM EXECUTIVE OFFICE
INTELLIGENCE, ELECTRONIC WARFARE AND SENSORS
Aberdeen Proving Ground, MD 21005

MAR 31 2017

SFAE-IEW

MEMORANDUM FOR Inspector General [REDACTED], Department of Defense,
4800 Mark Center Drive Alexandria, Virginia 22350-1500

SUBJECT: Program Executive Officer for Intelligence, Electronic Warfare, and Sensors (PEO IEW&S) Response to the DoD Inspector General (IG) Audit Draft Report: The Army Needs to More Effectively Prepare for Production of the Common Infrared Countermeasure (CIRCM) System (Project D2016-D000AE-0199.000)

1. Response to DoD IG Recommendation C.1. Concur that PEO IEW&S will work with the Defense Acquisition Executive, as the CIRCM Acquisition Program Baseline (APB) approval authority, and his staff to ensure the CIRCM Milestone C APB is consistent with statutory and regulatory requirements. Additionally, PEO IEW&S will ensure CIRCM performance requirements are accurately traced to CDD/CPD operational requirements in the Test and Evaluation Master Plan and other program documents as required. CIRCM program reporting will include the status of reliability, availability and maintainability performance requirements.

2. The POC for this memorandum is [REDACTED] and can be reached at [REDACTED] or [REDACTED].

KIRK F. WOLLMECKE
Major General, USA
Program Executive Officer
Intelligence, Electronic Warfare and
Sensors

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Commander, Army Aviation Center of Excellence



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND
950 JEFFERSON AVENUE
FORT EUSTIS, VIRGINIA 23604-5700

ATIR

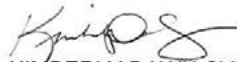
30 MAR 17

MEMORANDUM FOR Inspector General, Department of Defense, 4800 Mark Center Drive, Alexandria, Virginia 22350-1500

SUBJECT: Command Reply to DODIG Draft Report on the Audit of the Acquisition of the Army Common Infrared Countermeasures Program (Project D-2016-D000AE-0199.000)

1. HQ TRADOC's reply to the subject draft report is enclosed. We concur with Recommendation A.1 as addressed to Commander, U.S. Army Aviation Center of Excellence (USAACE).
2. USAACE will revise the draft capability production document (CPD) to require that the system demonstrate the reliability threshold (minimum) requirement of 214 flight hours before the full-rate production decision and submit the revised CPD to HQDA for staffing NLT 30 June 2017.
3. Point of contact is [REDACTED] TRADOC Internal Review and Audit Compliance, DSN [REDACTED]

Encl


KIMBERLY DAWN CYR
 Director, Internal Review
 and Audit Compliance

Commander, Army Aviation Center of Excellence (cont'd)



DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY AVIATION CENTER OF EXCELLENCE
2218 6TH AVENUE
FORT RUCKER ALABAMA 36362-5105


ATZQ-CD

28 March 2017

MEMORANDUM FOR Headquarters, Training and Doctrine Command (TRADOC), 950 Jefferson Avenue, Fort Eustis, VA 23604 ATTN: [REDACTED]

SUBJECT: United States Army Aviation Center of Excellence (USAACE) Response to Draft DOD IG Report: The Army Needs to More Effectively Prepare for Production of the Common Infrared Countermeasure System (Project D2016-D000AE-0199.000)

1. USAACE, concurs with the intent of the DoD IG recommendation A.1 and will update the draft CPD. USAACE is working with the Program Manager Aircraft Survivability Equipment (PM ASE) to show the demonstration of the threshold requirement prior to full rate production.
2. PM ASE's current Test and Evaluation Master Plan (TEMP) employs numerous controls throughout the reliability test process and has established interim goals that puts CIRCM on a reliability growth path that will ensure success and eventually a reliability threshold of 214 hours.
3. My point of contact for this memorandum is [REDACTED]


RICHARD R. COYLE
COL, AV
Director, TCM-AB

Encl

Project Manager, Aircraft Survivability Equipment

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REPLY TO
ATTENTION OF

SFAE-IEW-ASE

DEPARTMENT OF THE ARMY
PROJECT MANAGER, AIRCRAFT SURVIVABILITY EQUIPMENT
6726 ODYSSEY DRIVE
HUNTSVILLE, ALABAMA 35806

MAR 28 2017

MEMORANDUM FOR Inspector General [REDACTED], Department of Defense, 4800 Mark Center Drive Alexandria, Virginia 22350-1500

SUBJECT: Project Management Office Aircraft Survivability Equipment (PM ASE)
Response to the DoD Inspector General (IG) Audit Draft Report: The Army Needs to More Effectively Prepare for Production of the Common Infrared Countermeasure (CIRCM) System (Project D2016-D000AE-0199.000)

1. The Project Manager for Aircraft Survivability Equipment provides responses to Recommendations A.2 and C.2 below.

a. PM ASE agrees with DoD IG Recommendation A.2 to update the CIRCM Test and Evaluation Master Plan (TEMP) to require the CIRCM system to demonstrate the system reliability threshold Mean Time Between Operational Mission Failure requirement of 214 hours before the Full Rate Production (FRP) decision. PM ASE has coordinated with the Army Test and Evaluation Command and Director Operational Test and Evaluation to update the CIRCM Milestone C TEMP to specify that the reliability requirement will be demonstrated with a point estimate prior to the FRP.

b. PM ASE agrees with DoD IG Recommendation C.2 to continue to report program progress on demonstrating system reliability in the quarterly Defense Acquisition Executive Summary (DAES) Report. PM ASE will continue to report program progress on demonstrating system reliability in the quarterly DAES Report as part of the efforts to achieve the sustainment operational availability requirement established in the Acquisition Program Baseline.

2. The POC for this memorandum is [REDACTED] and can be reached at [REDACTED] or [REDACTED].

A handwritten signature in black ink, appearing to read "Jong H. Lee".

JONG H. LEE
COL, AV
Project Manager
Aircraft Survivability Equipment

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Defense Contract Management Agency



DEFENSE CONTRACT MANAGEMENT AGENCY
3901 A AVENUE, BUILDING 10500
FORT LEE, VA 23801-1809

MEMORANDUM FOR DEPARTMENT OF DEFENSE, INSPECTOR GENERAL, AUDIT
POLICY AND OVERSIGHT

SUBJECT: DCMA Comments to DoDIG Draft Report, "The Army Needs to Effectively
Prepare for Production of the Common Infrared Countermeasure System,"
March 2, 2017, (Project No. D2016-D000AE-0199.000)

The attached is the Defense Contract Management Agency's response to the subject
DoDIG Draft Report dated March 2, 2017, that contained recommendation B.1 to DCMA.

The point of contact for this response is [REDACTED]

MASIELLO.WEND [REDACTED]
Y.M. [REDACTED]
Wendy M. Masiello, Lt Gen, USAF
Director

Attachment:
As stated

Defense Contract Management Agency (cont'd)

DCMA Response to DoDIG Draft Report, "The Army Needs to More Effectively Prepare for Production of the Common Infrared Countermeasure System," March 2, 2017, (Project No. D2016-D000AE-0199.000)

DoDIG Recommendation B.1:

We recommend that the Commander, Defense Contract Management Agency Chicago Contract Management Office, follow procedures provided in Defense Contract Management Agency Instruction 205, "Major Program Support," December 10, 2014, to establish letters of delegation with the Commanders of the Defense Contract Management Agency Contract Management Offices appropriate for providing surveillance of the two subcontractors responsible for designing and building the system processor unit and laser components of the B-kit that comprise the Common Infrared Countermeasure system.

DCMA Response:

The Defense Contract Management Agency concurs with the Department of Defense Inspector General's recommendation to issue letters of delegation to provide increased surveillance for the two subcontractors responsible for designing and building the system processor unit [REDACTED] and laser components [REDACTED] based on the current performance for two subcontractors, which indicates an increase risk to the overall Common Infrared Countermeasure program (CIRCM). All letters of delegation for the four major or critical subcontractors [REDACTED] of the CIRCM program have been accepted through DCMA delegation e-Tools: Pointer Tracker delegation accepted 20 Jan 17; System Processor delegation accepted 1 Feb 17; Laser delegation accepted 13 Feb 17; and A-kit delegation accepted 14 Feb 2017.

Acronyms and Abbreviations

CIRCM	Common Infrared Countermeasure
CMO	Contract Management Office
DAES	Defense Acquisition Executive Summary
DCMA	Defense Contract Management Agency
JCIDS	Joint Capabilities Integration and Development System
JCS	Joint Chiefs of Staff
PAR	Program Assessment Report
RAM	Reliability, Availability, And Maintainability



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Congressional Liaison

congressional@dodig.mil; 703.604.8324

Media Contact

public.affairs@dodig.mil; 703.604.8324

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