

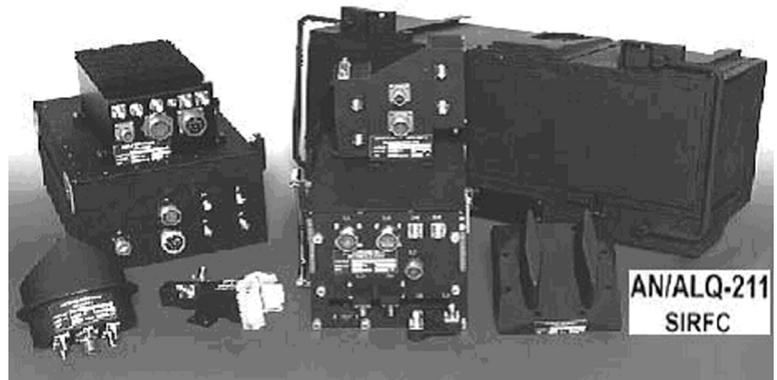
# Suite of Integrated Radio Frequency Countermeasures (SIRFC) AN/ALQ-211

The Suite of Integrated Radio Frequency (RF) Countermeasures (SIRFC) is intended to be an integrated aircraft survivability system that provides defensive, offensive, active, and passive countermeasures to ensure optimum protection for the host aircraft. Plans were to integrate the system on the AH-64D, MH-60K, and MH-47E helicopters, and the CV-22 and U-2 fixed-wing platforms. The lead aircraft for SIRFC integration and test and evaluation was the AH-64D Longbow Apache; however, the Army has decided that SIRFC is no longer required on that platform. Prior to this decision, a test installation on the Longbow Apache was developed and tested. Subsequent host aircraft platforms will undergo Follow-on Test and Evaluation to assess unique platform integration effectiveness and suitability issues.

SIRFC consists of two required sub-systems: the Advanced Threat Radar Jammer (ATRJ) and the Advanced Threat Radar Warning Receiver (ATRWR). The Advanced Airborne Radio Frequency Expendables package and the Escort Stand-Off variant are two system optional components that are currently unfunded. The system provides warning (situational awareness), active jamming (self-protection) and, when necessary, expendable countermeasures control to defeat threat radar guided weapon systems. Future integration of SIRFC with the Suite of Integrated Infrared Counter Measures (SIIRCM) on aircraft, which may be equipped with both systems, is a program objective that optimizes multi-spectral threat countermeasures. From this point on, when the name SIRFC is used, it will refer to ATRJ and ATRWR, which are major sub-systems under this program's development, and are intended to address RF (not Infrared) SAMs.

SIRFC achieved Milestone II in FY95 resulting in an Engineering & Manufacturing Development (EMD) contract to produce five test articles supporting Test and Evaluation through Initial Operational Test and Evaluation. The program underwent an acquisition plan restructure in FY00 to allow for correction of problems discovered in early testing and to better accommodate program milestones and execution of allocated program funding. A low-rate initial production (LRIP) decision to produce additional units for test and integration on follow-on platforms was made in May 2002, with Milestone III scheduled for FY04.

The first EMD test articles were delivered in FY99 and installed on the AH-64D Longbow Apache for integration testing. Upon SIRFC installation on the AH-64D Apache, the test team encountered several integration performance problems with the Operational Flight Program software. The most significant of these problems surfaced during FY00 developmental testing (DT) at the Benefield Anechoic Facility (BAF) at Edwards Air Force Base, California. The purpose of BAF testing was to evaluate SIRFC's integrated system performance as installed on the test platform. During this testing, the SIRFC system revealed significant performance problems handling threat emitters in a dense signal environment. These problems led the Program Manager to stop test efforts on the AH-64D until integrated performance issues could be resolved. An additional year was inserted into the EMD Phase to allow time in the schedule to sufficiently analyze discovered deficiencies, develop and implement corrections, and properly evaluate software performance.



*The Suite of Integrated Radio Frequency Countermeasures is intended to be an integrated aircraft survivability system that provides defensive, offensive, active, and passive countermeasures with the current primary focus on radio frequency guided missiles.*

# ARMY PROGRAMS

## **TEST & EVALUATION ACTIVITY**

The BAF tests were repeated in January 2001 using the same test plan as in the earlier test. Performance was significantly improved with no major deficiencies noted. Government developmental flight tests were conducted in July and August 2001, and a Limited User Test (LUT) was conducted in September and October 2001. The performance of the government DT and LUT were evaluated in FY02.

## **TEST & EVALUATION ASSESSMENT**

Developmental problems resulted from continuous modifications being made throughout both contractor and government DT flight tests, and because the system was less mature when entering the LUT than would have been desired. Nevertheless, the LUT was considered a valuable opportunity to gather more information on system operation and facilitate improvements.

Analysis of the performance in the DT and the LUT indicated that, while SIRFC performance as a radar warning receiver (RWR) was superior to that of other RWRs tested, there were some deficiencies in its performance. The effectiveness of its jamming in increasing the survivability of the host aircraft in a threat environment was poor. As a result, the Army has awarded a correction of deficiencies contract to the system development contractor in order for development of corrective actions. These corrective actions will be implemented in the LRIP units for further testing. SIRFC has not yet undergone an Initial Operational Test and Evaluation. SIRFC will undergo operational testing before a full-rate production decision is made.