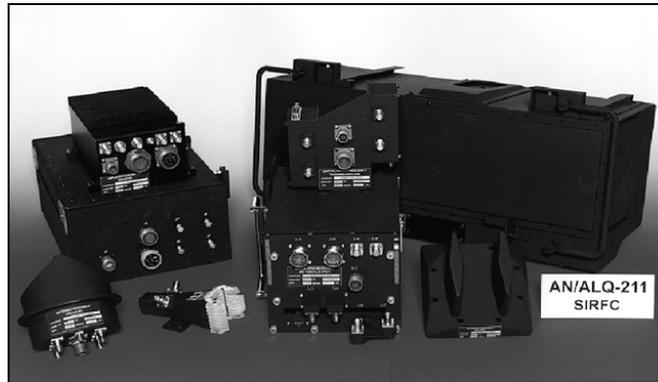


SUITE OF INTEGRATED RADIO FREQUENCY COUNTERMEASURES (SIRFC) AN/ALQ-211



The Suite of Integrated Radio Frequency 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. This system will be integrated 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 is the AH-64D Longbow Apache. Subsequent host aircraft platforms will undergo FOT&E 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 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 specifically to ATRJ and ATRWR, which are major sub-systems under this program's development.

BACKGROUND INFORMATION

SIRFC achieved Milestone II in 1QFY95, resulting in an EMD contract to produce five test articles supporting T&E through IOT&E. 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. An LRIP decision is planned for June 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 (OFP) software. The most significant of these problems surfaced during 1QFY00 developmental testing at the Benefield Anechoic Facility (BAF) at Edwards AFB, CA. The purpose of BAF testing was to evaluate SIRFC's integrated system performance as installed on the test platform. Aircraft platform testing at BAF included threat identification and prioritization, evaluation of deployment of jamming techniques, performance against both single and multiple emitters (system loading), and measurement of Angle of

Arrival accuracy. 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 OFP software performance.

TEST & EVALUATION ACTIVITY

The BAF tests were repeated in January 2001 using the same test plan as in the earlier test. Results were significantly improved with no major deficiencies noted. The BAF tests were followed by contractor flight tests to further mature the system. Government developmental flight tests were conducted in July and August and a Limited User Test (LUT) commenced in September 2001, with completion scheduled for late October. The results of the government DT and the LUT will be evaluated and reported in a system assessment that will support the LRIP decision.

TEST & EVALUATION ASSESSMENT

The SIRFC Program Manager concluded that the previously promulgated test and evaluation schedule did not allow for adequate time to resolve unknown technical problems commonly encountered during the development of electronic warfare programs. Although "box-level" performance in the contractor's test facility was adequate in assessing performance in a controlled laboratory environment, it did not sufficiently evaluate system performance in a dynamic, multiple emitter environment that heavily tasks and stresses OFP software. The integration problems encountered during initial testing at BAF provided the necessary data to support the Program Managers' actions to restructure the EMD phase of the program to include more effective developmental testing. Further integration problems unique to the airborne environment were encountered early in the flight test program. This resulted in continuous modifications being made throughout both contractor and government DT flight tests and the system entered the LUT less mature than desirable. Nevertheless, the LUT was considered a valuable opportunity to gather more information on system operation and to further mature it. Problems discovered during the LUT are being investigated.