

# AP-3C ESM

## Electronic Support Measures

- Integrated ESM System
- Microwave Band Receiver
- Sub-microwave Band Receiver
- ESM Processor and ESM Host computing
- Multifunction Display and Auxiliary Subsystems
- Ground Support Systems

In 1989 BAE Systems was awarded prime contractor on the AIR-5140 project for the installation, test and upgrade of the Electronic Support Measures (ESM) equipment for the RAAF's AP-3C Orion Maritime Patrol aircraft. At that time this represented the largest Electronic Warfare project ever contracted to the Australian Defence Industry. As prime contractor, BAE Systems were responsible for all aspects of the aircraft modification, including systems engineering, design and development of software and hardware interfacing between the ESM system and the Data Management System, and completion of the certification and type acceptance. Integration and installation work of the AN/ALR2001 ESM system was performed on a total of 19 aircraft in addition to the provision of a Software Support Facility, Operational Mission Simulator, Ground Support Equipment as well as associated training and support services.

The AN/ALR2001 ESM System is an integral part of the AP3C's sensor suite and is used to passively detect, locate, classify and track surface and airborne Radio Frequency (RF) emitters. ESM contacts are displayed at the Sensor Station, and to the pilot (where appropriate) and are passed to the aircraft's data management system where they are merged and displayed with contacts from other sensors. ESM data can also be logged for post flight analysis.

The airborne system comprises of the Microwave Band Receiver, Sub-Microwave Band Receiver, ESM host and signal processing processors, Sensor Station displays and auxiliary sub-systems.

The ground support systems comprise the Software Support Facility, four deployable Pre/Post Flight Facilities, Operational Mission Simulator and two Part Task Trainers.



Since the AN/ALR2001ESM system was originally fitted to the RAAF AP3C fleet under project AIR-5140 a number of components have become obsolete thus necessitating an upgrade program to the ESM equipment.

The AIR-5276 Phase 8B Upgrade project will provide a technology refresh and capability enhancements to the airborne ESM system for the RAAF AP3C aircraft, and its pre and post mission support facilities for the Joint Electronic Warfare Operational Support Unit (JEWOSU). Collectively these systems form a closed loop operational environment for conducting missions and provide improved situational awareness of RF based threats.

The ESM host processor, the ESM signal processor and the airborne system software are being upgraded to provide enhanced operational effectiveness. Within the auxiliary sub-system the Analogue Scope, Intermediate Frequency Pan Display and Recorder components are being updated.

Ground support systems will be upgraded to compliment the changes introduced into the airborne system. The Pre-Flight Message Generation (PFMG), Post-Flight Analysis (PFA), system test facilities, software development environment, field deployable mission support facilities, procedural trainers (basic ESM operator trainers) and the Integrated Test

and Training Facility which provides training of ESM operators, both as ESM sensor system experts and as part of the AP3C mission system team, will all be upgraded.

A suite of integrated logistic support products is also supplied.

Technologies to be employed in the upgraded ESM include relational databases (Microsoft SQL Server), ESRI GIS interfaces, C and C++ programming languages and the LINUX operating system.



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03/07

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