

UAV Experimentation System

UES

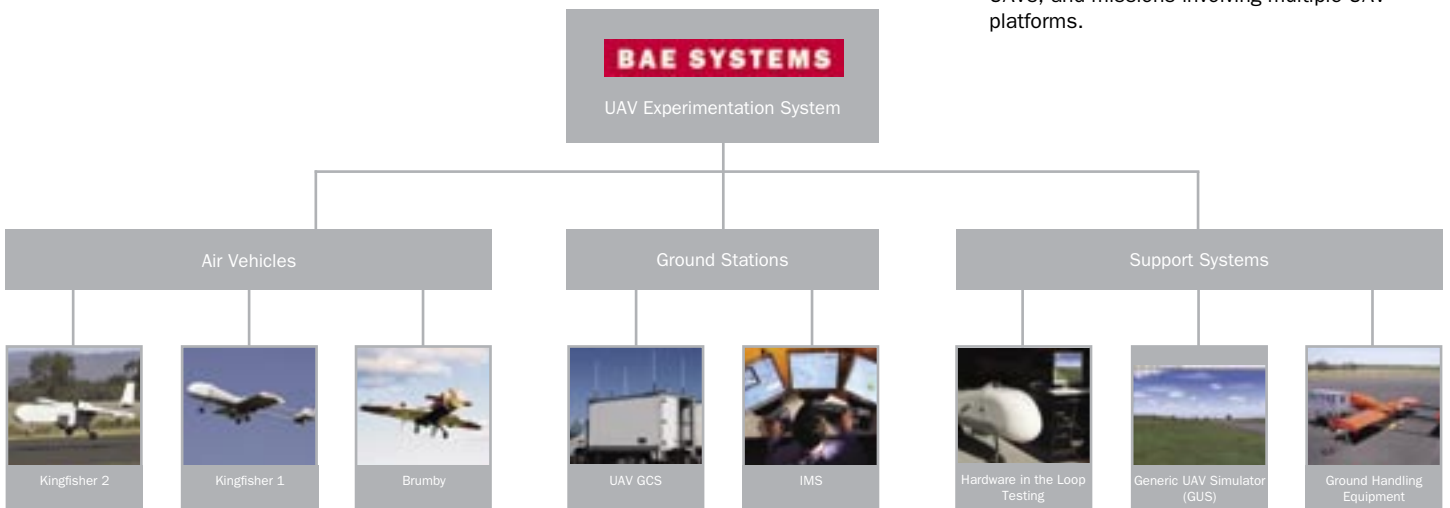
- A multi-platform, multi-ground station
- Developed specifically for supporting experimentation and demonstration of technologies and products related to Unmanned Aerial Vehicle (UAV) systems, other autonomous systems, ISR networks and Network Centric Warfare
- Decentralised Data Fusion Capability Technology Demonstrator (DDF CTD) program
- Future UAVs for Reconnaissance and Interdiction Capability Technology Demonstrator (FURI CTD) program

The UAV Experimentation System (UES) was developed by BAE Systems in support of the BAE Systems Australia Autonomous Navigation and Sensing Experimental Research (ANSER) project. The UES consists of:

- Multiple air vehicles
- Sensors
- Ground control stations
- Communications networks
- Support systems

The Brumby and Kingfisher UAVs are the UES air vehicles. They have been developed by BAE Systems Australia as low cost, simple to operate and easy to modify flight platforms, capable of carrying test hardware for experimentation and demonstration purposes. The UAVs are fully autonomous, but can be operated remotely for maximum control over experimental missions.

The UES ground station combines the engineering development capability of the ANSER ground station with the operationally focused ISR Management System, providing the ability to perform operations and experiments in the areas of command and control, imagery analysis, exploitation and dissemination, ISR networking, mission planning and management, airspace management and networked based logistic support and asset management. The UES ground station is STANAG 4586 compliant and capable of controlling multiple types of UAVs, and missions involving multiple UAV platforms.



The BAE Systems Australia Generic UAV Simulator (GUS) is a modular, high fidelity mathematical model of a UAV that can be tuned to represent specific, fixed wing UAVs through a simple user interface.

GUS combines both aerodynamic/flight dynamic models with detailed structural dynamics models, providing the capability to simulate flight performance and the effect of vibration and model dynamics on sensor and system performance. GUS is integrated into the UES ground system to provide the capability for pre-mission simulation and planning and mission analysis. GUS also provides the core of the UES Hardware-in-the-Loop (HWIL) simulation capability. The HWIL simulation supports the development, integration and testing of the UES and the integration of test systems within the UES.

Proven UES Capability

- Autonomous Navigation and Sensing Experimental Research (ANSER) project
- Decentralised Data Fusion Capability Technology Demonstrator (DDF CTD)
- Future UAVs for Reconnaissance and Interdiction Capability Technology Demonstrator (FURI CTD)
- Advanced Research Program for UK Ministry of Defence



Typical System Roles

- UAV
 - Payloads
 - Avionics
- Ground Control Station
 - Command
 - Control
 - Communications
 - Computing
 - Intelligence, Surveillance and Reconnaissance (C4ISR)
- Integrated System
 - Multi-platform co-ordination
 - Sense and avoid/collision avoidance
 - Sensor data fusion
 - Network Centric Warfare
- Concept of Operation (CONOPS) development and assessment
- Operation, support and handling exposure



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