

Integrated Antenna Solutions



INTEGRATED ANTENNA SOLUTIONS

The Integrated Antenna Solutions (IAS) team within Selex ES are world leaders with a long pedigree in both the electronics countermeasures (ECM) and communications markets.

Bespoke antenna solutions – civil and military – for a wide range of fixed, mobile and man portable platforms including manpack/body-worn applications, wideband/multi-band vehicle installations and aircraft arrays.

Our specialist capabilities provide a fast route to market by analysing the total requirement, antenna specification, target application and the deployed environment or platform.

Rapid on-site prototyping provides fast insight into the physical solution once the initial analysis and simulation stages have been passed. Our design and manufacturing facilities include a secure outdoor antenna test range with a vehicle turntable and workshop.

As a market leader, Selex ES possesses advanced platform analysis tools using large, secure computing resources. The advanced computer modelling offers analysis from 40 kHz to 40 GHz.

OUR KEY PRODUCTS

UHF satellite-on-the-move (Cross-Link)

A range of antennas for UHF, line-of-sight satellite communications under harsh environmental conditions.

The line-of-sight mode can be used for communicating with satellites low on the horizon.

MILITARY-GRADE L1/L2 GPS

We supply high performance antennas in both passive and active configurations for military grade or commercial GPS systems.

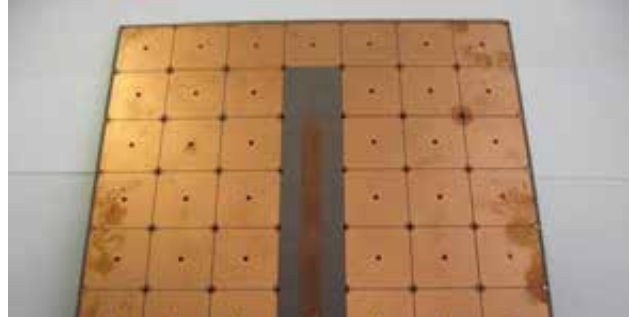
COVERT/DISCREET

We have a wide range of antenna solutions for deep-fit, covert and discreet applications. Such antennas can be body-worn, vehicle-mounted or designed to fit discreetly into most environmental scenarios.



ANTENNAS FOR COMMUNICATION SYSTEMS

The company offers a variety of antenna products for use in communication systems operating from HF through to UHF bands. Our world-leading modelling and simulation capabilities allow us to provide optimally designed solutions, particularly for vehicle-mounted and body-worn applications.



SMART MATERIALS

The company is experienced in the use of smart materials, such as high impedance surface materials. This technology is ideally suited for conformal antenna designs and enables product optimisation in respect of weight, size and aerodynamic features for high-speed platforms.

ECM SYSTEMS

We have a successful pedigree in designing and producing high performance antennas for soldier manpack and vehicle-mounted ECM systems. A variety of frequency bands are covered between 20 MHz and 10 GHz, with varying power and gain parameters.



BODY-WORN ANTENNAS

We provide a number of body-worn antenna solutions. Typically, these could be for mobile TV broadcast systems such as a motorbike-mounted camera system following a cycle race or athletic event on public roads. Other applications include covert security and/or surveillance systems.

IFF APPLICATIONS

Selex ES capability in the field of airborne IFF antennas has been applied to fast-moving jets and other airborne platforms.

Solutions are designed using our world-leading computer modelling and simulation capability. Such antennas are optimised for weight and aerodynamic features, as well as all-important antenna performance to enhance the IFF system capability.

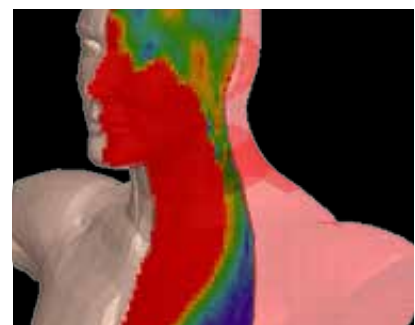
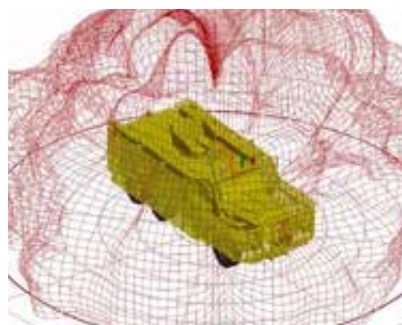
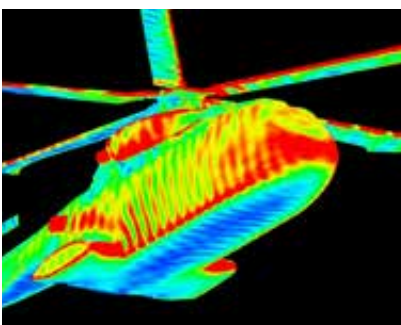


CAPABILITIES

RF modelling and simulation

Advance suite of tools using a wide range of methods including:

- Method of Moments (MoM)
- Multilevel Fast Multipole Algorithm (MLFMA)
- Finite-Difference Time-Domain (FDTD) method
- Finite Element Method (FEM)
- Finite Integration Technique (FIT)
- Unified Theory of Diffraction (UTD)
- Physical Optics (PO)
- Integration of EM modelling tools with detailed circuit analysis software
- Detailed and accurate CAD construction (including material properties) of platform
- Calculations performed on a 100 GB parallel PC cluster
- Analysis include:
- Optimised antenna performance
- Electromagnetic Compatibility (EMC) and mutual interference
- Radiation patterns
- Near field (electric and magnetic) strengths
- Radiation hazards to fuel, ordnance and personnel
- Specific Absorption of Radiation (SAR) analysis
- Disguised antenna designs for the Superyacht market



Testing

We offer an excellent outdoor facility for testing antennas plus a turntable that can hold vehicles or other platforms weighing up to 2.5 tons. We can perform RF measurements over the frequency range 10 MHz to 18 GHz. If required, we can also offer a variety of other tests, such as mechanical shock, vibration and environmental tests.



Rapid prototyping

Our design and development facility holds stocks of materials commonly used in antenna designs. This supports our ability to rapidly produce new or modified antenna designs for testing, trials and approval exercises. We also work closely with our highly experienced supply chain.



Value-added support services

To provide customers with the most complete solutions possible, we often support the antenna requirement with additional integrated solutions. These include ground planes, tuning and matching circuits, and components such as multiplexers, combiners/splitters, low noise amplifiers, cable assemblies, voltage surge protection and diversity systems.

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