

SELEX Galileo ATOS Background

Airborne Tactical Observation and Surveillance Systems

ATOS is the world's leading solution to the growing demand for border control, wide area surveillance, targeted surveillance (overt or covert), environmental and disaster control, integrating a wide number of sensors and sub-systems in a highly modular design

Emerging unconventional scenarios have redefined the concept of patrolling missions, to encompass threats that range from terrorist attacks to illegal immigration and the protection of Exclusive Economic Zones (EEZ).

General Description:

ATOS is an advanced and flexible airborne integrated observation and surveillance system. Its modular, open architecture easily supports the inclusion of additional capability and operator console.

Moreover, the ATOS is available in various configurations and can be easily installed on a wide range of platforms (including fixed and rotary wing aircraft), guaranteeing the maximum flexibility to meet every requirement, and can be easily installed and removed from aircraft. Different configurations are available to fit various size of platforms.

The Human/ Machine interface and sensor integration has been carefully designed to minimise the operator workload while increasing the operator's situational awareness during the mission.

Proven Product:

The ATOS has already been selected by five different nations. Systems have been installed, on a wide range of platforms (ATR 42, DASH – 8, Beechcraft, Casa, Piaggio Aero, A109, AB 412 and AS300B3 helicopters).

Following an international competition, the ATOS has been selected to be installed on the Australian airborne surveillance fleet, contributing to the Country's border protection and surveillance requirement.

In Italy, the ATOS system is in service with the Guardia di Finanza and Guardia Costiera on the ATR 42 MP, and in its light weight version, for the Guardia di Finanza, on board the P166. The ATOS has recently been selected for the Italian MoD to equip the new four ATR72 aircraft.

Advantages

The ATOS can be tailored to meet any operational requirement of the customer.

The system is offered along with a total logistic support package covering ground and flight training, user manuals and maintenance.

Fixed or mobile Ground Control Stations (GCS) with data-link and video processing capabilities are also available.

Typical operational requirements:

Exclusive Economic Zone (EEZ) Patrol

- Detection, reporting and recording the location of any foreign vessels operating within the prescribed seaboard limit zone.

Search and Rescue

- Detection, localisation and assistance to any vessel in an emergency including shipwrecked people.
- To act as on-scene commander co-ordinating aid operations of cooperating vessels/ aircraft.

Environmental Survey

- Early detection of pollution of sea surface due to discharge of oil from ships or installations.

Maritime Patrol

- Detection, localisation and reporting of any surface vessels in the prescribed coastal area; long range detection, tracking and identification of surface targets.

Integrated Sensors:

Radar

Several models of the most up-to-date surveillance radar available today on the market have been integrated within ATOS.

Main operative modes:

- > Small Targets detection
- > Long Range Target detection
- > ISAR (Inverse Synthetic Aperture Radar) imaging mode
- > SAR (Synthetic Aperture Radar) surface mapping
- > MTI/ GMTI (Moving Target/ Ground Moving Target)
- > Air-to-Air detection
- > Weather.

- **Gabbiano** is a state-of-the-art, X-band Pulse Doppler Radar conceived to match a variety of all-weather surveillance missions, over Ground, along coasts and on sea.
Gabbiano is a versatile Radar: suitable for Unmanned Aerial Vehicles, as well as for both fixed and rotary wing manned Platforms, it is available in two variants:
with 360° antenna, for belly-mounted installation, or with ± 90° antenna, for nose-mounted installation.
- **Seaspray** is a multi role radar combining a state of the art active electronically scanned array with a commercial off the shelf processor. The radar covers both air to air and air to surface environments

Electro-Optics

FLIR and TV cameras on stabilised turrets from various Suppliers can be integrated to fulfil specific Customer requirements. SELEX Galileo's EOOST23 turret installed on ATR42 meets the highest performance requirements:

- > Very high level of platform stabilisation, allowing the use of a very narrow Field-Of-View for long range identification
 - > Infrared in the 3-5 micron and 8-12 micron bands
 - > Colour video camera with large zoom capabilities.
- **EOOST-46** is a stabilized multi-sensor turrets for surveillance and tracking. Can fit a range of EO payloads, including eye safe laser range finder, laser illuminator, TV camera, and the ERICA SLX Thermal imager operating in the medium wavelength spectrum (3÷5 μ or 8÷12 μ).

Hyperspectral

- > Environmental surveillance and pollution control
 - > Dangerous materials identification and tracking.
- **SIM.GA** is a modular avionic hyperspectral system, composed of two Electro-Optical Heads (EOH) in VNIR, Short Wave InfraRed (SWIR) spectral range (from 0.4 μ m to 2.5 μ m) and a digital acquisition system.

SLAR

- > The Side Looking Radar allows a rapid scan of very large areas (up to 20 miles per side)
- > Environmental surveillance and pollution identification
- > Can operate in conjunction with other sensors.

ESM

- > Full band coverage
- > Designed to identify all modern radar.

AIS

Automatic Identification System

SAR DF (Search & Rescue Direction Finder)

- Five (plus one) Guard Channel to receiver Beacon and Radio signals.

Other role-specific sensors such as MAD (Magnetic Anomalies Detector) and sonic system for ASW roles may as well be integrated with ATOS.

- GAMAS is a family of Acoustic Systems developed by Selex Galileo to meet the requirements of a wide range of ASW missions for helicopters and Maritime Patrol fixed wing aircrafts as well

