



EEZ SECURITY &
PROTECTION SYSTEMS

EEZ SECURITY & PROTECTION SYSTEMS

INTEGRATED SURVEILLANCE OF THE EXCLUSIVE ECONOMIC ZONE

The Exclusive Economic Zone (EEZ) Security & Protection System is the company's solution that supports operational Maritime Agencies in their day-by-day operations of surveillance, management and protection of territorial sea, contiguous zone and EEZ against illegal activities such as smuggling, immigration, illegal fishing, unauthorized transit.

THE CONTEXT

Monitoring and environmental protection of the coastline, contiguous zone and EEZ represent an increasing priority for Homeland Security. Traditional systems, when used standalone for maritime surveillance of wide areas, up to 200nm from the coastline, show clear capabilities and limitations:

- Land based microwave radars are severely limited by horizon, and duct propagation is a possibility to improve range detection but it is not guaranteed
- Patrol vessels are not suited for surveillance while they are primarily involved in interdiction, Search And Rescue (SAR) and patrolling of denial area missions
- Patrol aircraft are characterized by high operating costs while aerostats are cheaper but require air traffic exclusion
- UAVs need some potential yet substantial infrastructure to keep sufficient numbers flying, space-based sensors are extremely powerful but revisit time is too long
- Land based HF radars (surface wave) are characterized by an affordable cost and they can reasonably detect medium targets, but they often need large areas (up to some km) for antenna installation.

Additionally, the application of conventional radars does not solve the problem of automatic non-cooperative target identification, specifically when relatively small and a priori unknown targets need to be automatically identified. Electro-optical systems, including airborne systems, offer effective identification but are essentially weather dependent.

Therefore, more sensors and systems need to be integrated, in order to carry out sea monitoring with a temporal and spatial resolution sufficient to allow the detection and automatic identification of small objects.

THE SOLUTION

The complex and heterogeneous tasks, the different level of interventions and the multidisciplinary approach represent the key drivers of a flexible solution able to provide suitable answers to EEZ security.

In this frame, the company has developed the EEZ Security & Protection System, targeted to Operational Agencies in maritime domain. The EEZ Security & Protection System supports the following activities:

- Prevention of accidents at sea and SAR
- Prevention of illegal intrusion and unauthorized transit
- Contrast of illegal trafficking, smuggling, piracy, terrorism, illegal fishing
- Monitoring of marine ecosystem and identification of marine pollution
- Protection of maritime infrastructure (e.g. Ports, Gas/Oil Field, underwater pipelines).

The system detects, assesses, traces and video records potential and actual intrusion attempts with an extremely high degree of accuracy.

Security breaches are quickly detected and assessed, to support coast security personnel in their rapid response to all violations.

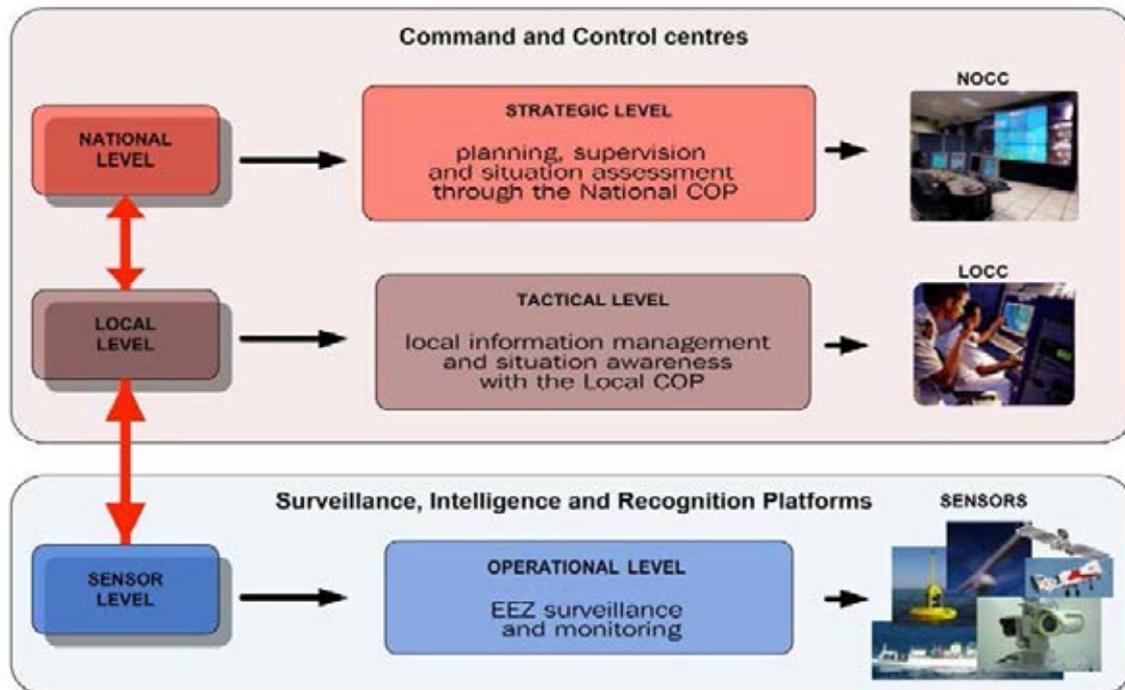
THE SYSTEM

The EEZ Security & Protection System is designed as an integrated "system of systems", where each component is selected to perform a particular role in the overall architecture.

Every asset exchanges information through all the levels of the architecture hierarchy and performs wider tasks at a higher level as well as in a standalone mode.

The coordination and management activities are based on the geo-reference of all assets, to enable users in their decision making processes face up emergency situations as incidents or special operations. The system is based on standardized proven and commercially available technology; it relies on fixed surveillance sites equipped with state-of-the-art sensors.

Data coming from these sites are processed and integrated to provide operators with a unique Common Operational Picture (COP) and Common Relevant Operational Picture (CROP), which represents specific views of the COP tailored on different groups of users.



A solid net-centric communication and operational infrastructure connects and enables the integration of all subsystems and platforms that are part of the system architecture. The system consists of three different hierarchical levels.

COMMAND & CONTROL CENTRES

The highest operational level is the National Operational Command and Control (NOCC) centre, which is the national strategic headquarter. The local COP, coming from LOCC centres, are fused in a global picture (National COP) aimed at supporting the command to provide national planning and strategic directives.

LOCAL OPERATIONAL COMMAND & CONTROL (LOCC) CENTRES

LOCC are intermediate command and control centres, responsible for the management of a set of surveillance, intelligence, recognition and communication platforms.

The LOCC centres perform sensor data collection and processing, sensor management, compilation and broadcasting of Common Operational Picture (COP) referring to the relative Area of Interest.

SURVEILLANCE, RECOGNITION & COMMUNICATION PLATFORMS

The surveillance, recognition and communication platforms, supply all the data necessary to build up the COP. The main components are:

- Coastal Surveillance Site (CSS): unmanned sites equipped with radar electro-optical sensors, transponders (AIS) and radio equipment (voice, communication)
- Long Range Surveillance Site (LRSS): unmanned sites equipped with radar HF Surface Wave Radars
- Surveillance platforms: airborne sensors (UAVs, airplanes, helicopters), naval sensors (fast patrol boats, offshore patrol vessels) and buoys sensors
- Satellite surveillance providing radar images to the relevant whole extended EEZ including the continental shelf.

KEY POINTS

- Enhanced Situational Awareness through advanced multi-sensor data fusion, considering differences in geographical and temporal resolution
- Integration with legacy systems and with most platforms and sensors selected from Finmeccanica product portfolio
- Increase of efficiency and intervention time reduction through advanced and automated workflows
- System security and flexibility, with backup sites to cope with different operational scenarios
- Better workforce skills, through enhanced training and higher workforce utilization
- High availability for ensuring service continuity in any condition and throughout all system operational lifecycle
- Cyber Security and Information Assurance capability, thanks to the Integrated Cyber Shield™ solution.



leonardocompany.com

For more information please email marketing_TCS@leonardocompany.com

Leonardo S.p.a.

Via Tiburtina, Km 12.400 - 00131 Rome - Italy - Tel: +39 06 41501 - Fax: +39 06 413133

This publication is issued to provide outline information only and is supplied without liability for errors or omissions. No part of it may be reproduced or used unless authorised in writing. We reserve the right to modify or revise all or part of this document without notice.

2017 © Leonardo S.p.a.

SIS MM083511-17

