



## Regulus

# Communications Band Electronic Warfare System

The communications spectrum control in any battlefield is a mandatory requirement. CESSM/COMINT System is a unique instrument to perform it.

Due to the high spectral saturation that has occurred in recent years, it is clear that CESSM/COMINT systems have to be updated in the same way, increasing the capability of discrimination and detection of signals in a dense environment. Also, the emerging spread spectrum transmission, hoppers, burst, and so, also requires the use of new systems with greater speed of detection as well as increased instantaneous bandwidths.

The high density of information can saturate the operator; therefore the systems must be capable of information smart filtering then reducing operator workload without losing information.

The communication technology evolves daily with new standards, making a traditional analogue Narrow Band system obsolete in a short time. Thus, digital technology is used extensively to enable the upgrade of the systems with new capabilities, keeping them operating longer. Digital recording of IF signals can also provide additional system capability by using advanced post-processing techniques, either on the platform or on land.

To cope with all these new challenging threats, and taking advantage of more than 25 years of experience in SIGINT systems integration, Indra is pleased to offer a very powerful COMINT System.

Indra Regulus CESSM/COMINT system is built around a high speed Direction Finder-Explorer in V/UHF range with a high precision DF measurement and a fast scanning explorer in HF range (optional) which are continuously exploring the spectral activity in the frequency range of coverage for each sensor in order to cover entirely the frequency band range using its own antennas in order to obtain a very high probability of detection (nearly 100%).

## Main Features

- Alert capability over the enemy units and their intentions.
- Tactical information, with very high probability of detection (nearly 100%), accurate identification and tracking of targets in a dense scenario.
- Strategic information about enemy communications systems including COMINT analysis.
- Spatial and temporal patterns that will allow for performing predictions and analyses of the threat future evolution.
- Training capability for the operators based on recorded scenarios.
- Fusion, integration and evaluation of the data provided by the EW sensors, generating the picture of the communications scenario in the area of interest.
- Knowledge about the means, the deployment ways, the tactics and, finally, about how the adversary employs the electromagnetic spectrum.
- Establishing and updating the Communications Electronic Order of Battle (CEOB).

## Capabilities

- Automatic surveillance of the electromagnetic environment according to the pre-defined settings.
- Detection of both new and pre-defined signals, including LPI emitters such as hoppers, broad spectrum, burst signals, etc.
- Demodulation/decoding of data signals and searching/monitoring via monitoring receivers over the band 1.6MHz to 3000MHz.
- Classification and analysis of communications signals including determination of the type of modulation, parameter measurement etc.
- Automatic measurement of signal parameters.
- Tracking of the active emitters.
- Identification of communication emitters and communication networks.
- Real-time recording of results (narrowband demodulated audio, time etc.).
- Data-base management (validation, correlation, entities, etc.).



Regulus has been designed to operate as a single system or integrated in a network system as a sensor.

As sensor integrated in a network, Regulus allows instantaneous detections and locations of emitters, from civilian to military LPI signals cooperating with some other units fitted with a Regulus system.

Regulus needs DF antennas and monitoring antennas. The DF antenna must be installed in the top of a mast ensuring 360° visibility free of obstacles.

## Why REGULUS?

- Highest technical characteristics to cope with modern engagements in a dense electromagnetic environment.
- Light weight, low power consumption and modular equipment for easy installation.
- Appropriate, modern and easy-to-use operating and handling modes.
- Highest reliability possible with reduced maintenance requirements at both preventive and corrective levels at all the Logistic Support levels.
- Superior integration capability with other sensors (RESM/ELINT, IMINT...), communications devices (radio, data-links, SATCOMS), Command Centers (C3/C3I), etc.
- Growth potential to meet future requirements.

The Regulus CESM/COMINT system is designed for detection and analysis of communications RF signals with a high probability of detection

## Regulus on board Spanish Navy F-100 Frigate

### C-ESM/COMINT

- Automatic surveillance
- Situational awareness
- Target acquisition
- Signal intelligence

### COMJAM

- Protection
- Disturbance with noise
- Confusion, false messages, saturation of networks

Proven Solution



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