



SAAB

CRS-COMBAT

COMMUNICATION RECONNAISSANCE
FOR TACTICAL OPERATIONS



WHY C-ESM & COMINT

The use of Communication Intelligence (COMINT) and Communications Electronic Support Measures (C-ESM) enables support for Command & Control systems.

CRS-Combat employs the OODA loop (observe – orient – decide – act) principle for C-ESM operations from a mission request through the different steps until reporting and re-tasking after the fulfilment of a mission.

Within both Command & Control and Electronic Warfare support, there are manifold needs for C-ESM. Additionally, previously performed operations can contribute to COMINT knowledge for future operations.

Combining CRS-Combat with R-ESM and jamming capabilities, an integrated Electronic Warfare (EW) system is realised.

CRS-Combat is used for tactical reconnaissance and surveillance, early warning and collection of information of the communication signals according to the geographic area and targets of interest.

It provides wideband detection, classification, direction finding, geo-location, and monitoring of radio signals and other emitters of electromagnetic waves. More functionalities like identification and tracking are described in the following.

APPLICATIONS

CRS-Combat enables decision support by integrating into C2S and C4ISR systems. It contributes to the situational awareness picture by providing enhanced knowledge about position, strength, behaviour, and intent of enemy forces.

It can be deployed as vehicle or shelter integrated as well as dismounted solution.

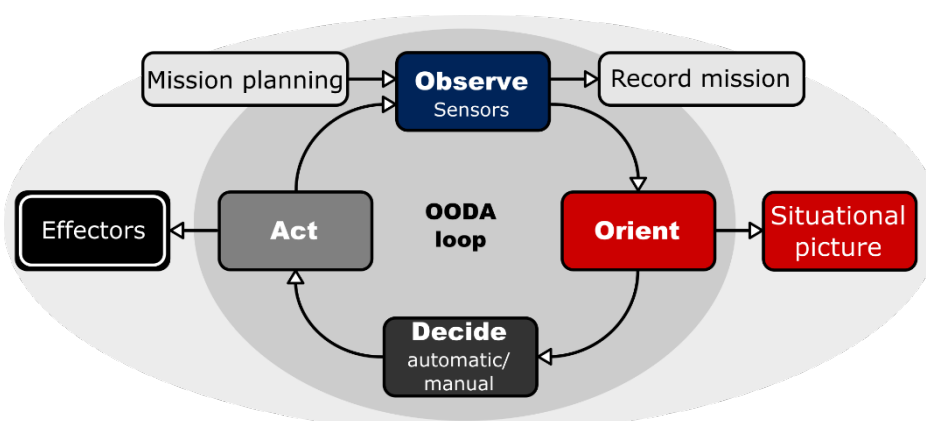
CRS-Combat can be operated as manned and remote solution.

BENEFITS

- Clear situational awareness picture (map-centric display)
- Agile, expeditionary, rapidly deployable, and rapidly re-configurable system (deployment < 20 minutes, demobilisation < 5 minutes)
- Two-men-portable dismounted solution
- “On the move” operation when integrated in vehicles
- Multi-functional and multi-operator concept
- Remote control and remote maintenance
- Outstanding sensitivity and dynamic range, bearing & geo-location accuracy
- Support for automated platform identification
- Automated signal detection, classification and processing of more than 200 analogue and digital transmission modes
- Comfortable health monitoring and BITE
- Interface for integration of customer developed demodulators and decoders
- Proven software concept allowing for fast updates and upgrades.

PRODUCT BACKGROUND

Saab Sensor Systems Germany introduced the CRS family to the market in 2005. Since then it is in use in different applications and configurations. Regular upgrades guarantee cutting edge technology.



SYSTEM DETAILS

The situational overview of targets of interest is displayed as lists and on a map (map-centric visualisation).

Depending on the tasks, different roles can be assigned and used. The system uses one common human machine interface for the system management, mission planning, mission monitoring, and result analysis.

An intuitive user interface allows for fast and easy system usage.

FEATURES

The complete system is based on wideband technology for both monitoring and direction finding.

- HF, VUHF and SHF frequency range
- Direction finding
- Geo-location with both AoA (angle-of-arrival) and TDoA (time-difference-of arrival) technology (sensor network required)
- Automated and interactive intercept of signals
- Different display functions for emitter display (polar, spectral, lists, map)
- Comprehensive online and offline analysis
- Interface to COMINT (offline analysis) for continuous improvement of performance and library maintenance
- Listen-in function to received signals
- Decluttering the situational picture by comprehensive filtering according to areas and sectors of interest, targets of interest and library knowledge etc.
- Alarm functionality based on filtering and specific parameters
- Role concept for different user types like supervisors, monitoring operators, analysts and administrators

- Sensor network including communication among sensors and the control station
- High system availability by fail-over function for control stations and sensors
- Tracking of emitters over time for improved situational awareness including visualisation.
- Recording of mission data, raw data (wideband and narrowband), and processing results.

TECHNICAL DATA

Frequency range (higher ranges upon request):

- Monitoring: 9 kHz to 6 GHz
- Direction finding: 300 kHz to 6 GHz

Direction finding: Selectable technologies Watson-Watt, Interferometer, and SRDF (super-resolution direction finding).

Bearing accuracy: 1° RMS

Virtual receivers 65 in the standard (narrowband channels) configuration, extendable.

Communication between the sensors and the central station: Wi-Fi, long-haul wireless, LTE or VSAT communication depending on distances and requirements.

EXTENSIONS

The system can be extended to provide more functionality with

- R-ESM (radar electronic support measures)
- ECM / EA system (jamming)
- Integrated SIGINT / EW.





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