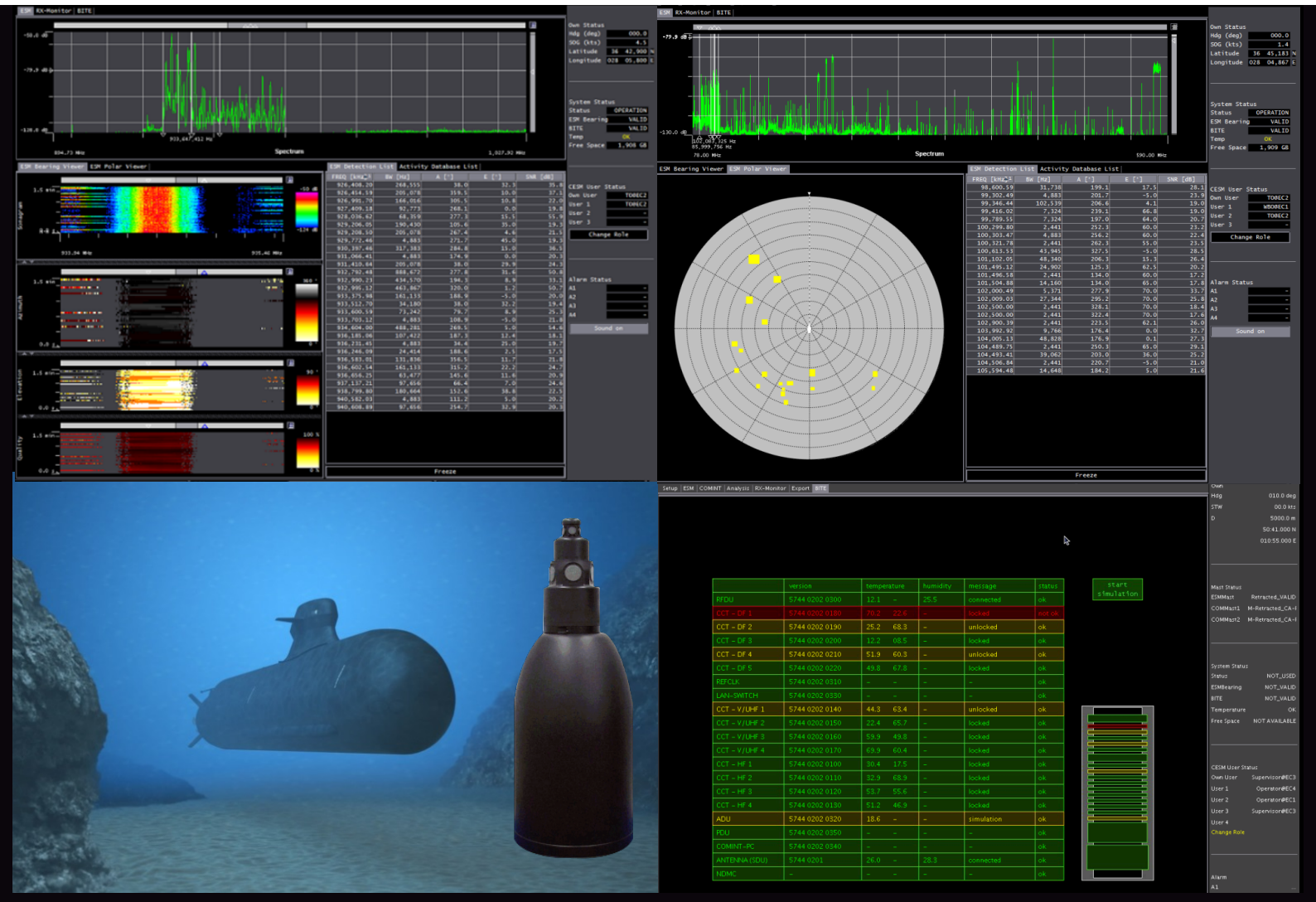
CRS-SUBMARINE

C-ESM & COMINT SYSTEM

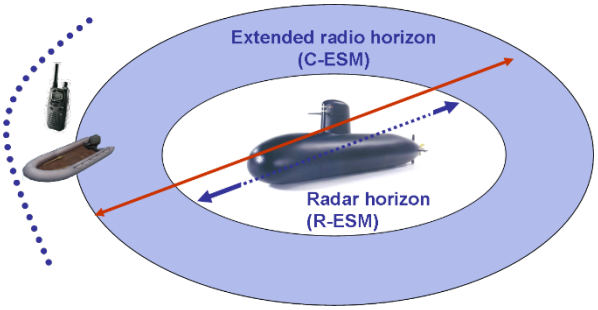


WHY C-ESM & COMINT

C-ESM & COMINT allows for the reconnaissance and surveillance of electromagnetic emissions in tactical and strategic scenarios.

The main advantage of C-ESM is to obtain an understanding of the environment (situational awareness). Additionally, targets without radar equipment can be detected and tracked by intercepting their communication equipment.

In most applications, a larger awareness of the radio horizon for communication signals is obtained due to the different propagation characteristics of the frequency bands used.



Together with other sensors the C-ESM & COMINT system provides longer emitter detection, interception and tracking range and therefore provides an earlier indication of activities and emerging events.

CRS-Submarine is used for tactical reconnaissance and surveillance, early warning and collection of information of the surrounding communication signals.

Wideband classification, direction finding, and monitoring of radio signals is possible.

APPLICATIONS

- Support for decision on safety of surfacing within a few seconds of acquisition time from below surface by means of periscope-mount antenna.
- Intelligence collection of the electromagnetic surroundings of up to a few minutes while surfaced. The information will be processed during dive phase.
- Get a complete picture with high DF accuracy and monitoring of all signals within a few minutes of surfacing. The information will be processed during dive phase.

BENEFITS

- HF and VUHF frequency range
- Very good bearing accuracy over the full azimuth and a wide elevation
- Beyond R-ESM: detection of objects without radar emissions, e.g. small boats, UAVs etc.
- Automated signal detection and classification
- Support for automated platform identification
- Plausibility check of emissions (AIS, ADS-B)
- Comprehensive online and offline analysis
- Listen-in function to received signals
- Multi-functional and multi-operator concept for special tasks
- Comfortable health monitoring and BITE
- Proven software concept allowing for fast updates and upgrades, independently from other on-board equipment
- Visualisation of the emitters as lists, polar display or map display.

PRODUCT BACKGROUND

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

EXPORT REGULATIONS

All relevant and applicable export control regulations are considered according to 5A001.b.5 of the regulation (EU) no. 1382/2014 of the European Parliament and of the Council.

SYSTEM DETAILS

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

An intuitive user interface allows for fast and easy system usage. Depending on the customer's requirements, different colour schemes can be activated.

FEATURES

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

- Outstanding sensitivity and dynamic range
- Different display functions for emitter display (polar, spectral, lists)
- Large variety of demodulators and decoders available for automated and manual signal analysis
- Online and offline processing
- Tracking of emitters
- Alarm function inside the system or for support to a CMS system.

FUNCTIONALITIES

The following functionalities can be employed:

- Search: for scanning the whole environment and providing situational awareness
- Monitoring: for finding special emissions, directions etc.
- Reporting: for condensing results and decision support
- Offline analysis: for detailed analysis of signals of interest.

All modes can be run in one console depending on the user's requirements.

PLATFORM INTEGRATION

We have competence in specialized integration issues:

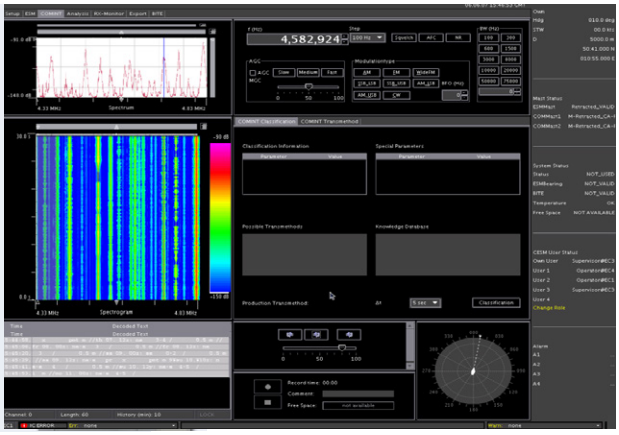
- Antennas, pressurized hull penetrating connectors and cabling
- Low vibration emissions (e.g. water cooling or spring-loaded assembly)
- Shock and vibrations requirements
- 3D calibration (before integration) & in-system calibration (of installed equipment).

TECHNICAL DATA

Frequency range (higher ranges upon request):

- Monitoring: 9 kHz to 6 GHz
- Direction finding: 300 kHz to 3 GHz

Direction finding: Watson-Watt and Interferometer; SRDF (super-resolution direction finding) upon request.



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