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Submarine command team trainer for the Royal Thai Navy: Taking the first steps in submarine warfare with simulation expertise from Rheinmetall

Supplied by Rheinmetall, the Royal Thai Navy's submarine command team trainer is now operational. In August 2012 the Royal Thai Navy contracted with Rheinmetall's Bremen, Germany-based Simulation and Training business unit to supply it with a sophisticated submarine command team trainer (SCTT) simulator. Since entering service in March 2014, the system has been used to train the Royal Thai Navy's submariners.

Key characteristics of the SCTT

In the complex underwater environment that submarines operate in, extensive prior training is a vital prerequisite for successful operational outcomes. As an experienced manufacturer of tactical simulators for conventional submarines, Rheinmetall offers the ideal solution: the SCTT.

Developed by Rheinmetall's Bremen, Germany-based Simulation and Training business unit, the SCTT is a very flexible simulation system. It is scalable from operator training in individual sensors and systems to command team training for operational units. The system for Thailand perfectly replicates a state-of-the-art type-free submarine. Every important component of a submarine's combat information centre (CIC), including combat management systems, heavy torpedoes, missiles, modern sonar systems and non-acoustic sensors (radar, link, ESM, periscope, etc.) are simulated with extreme fidelity.

Importantly, the SCTT can be networked with other simulators (e.g. submarine control simulators/SCSs, anti-submarine warfare/ASW simulators and naval tactical trainers) via open simulation standard protocol interfaces (distributed interactive simulation/DIS, high level architecture/HLA). To do so it uses Rheinmetall's Advanced Naval Synthetic Environment (ANSE) for generating scenarios, joint databases and networking. It can simulate, emulate or stimulate sonar, command and control, and effector systems of various makes. The consoles are reconfigurable for assignment of specific tasks.

A specific requirement of this project was to link the new SCTT with the existing ASW simulator, which RDE supplied in 2010. The ASWS is located at the Royal Thai Navy's main base, and consists of four reconfigurable surface ship cubicles, one generic SCTT

, two helicopters and one MPA cubicle. The new SCTT can be integrated into the simulation network of the ASWS, enabling it take part in the same scenario simulated by the ASWS. The two simulation sites are about three kilometres apart from each other.

The SCTT records all relevant data, voice communication and monitor images for subsequent synchronized analysis and debriefing; the exercise can be stopped and restarted at freely selectable points within an exercise.

How customers benefit from the SCTT

As mentioned above, the SCTT offers a great amount of flexibility. Customer-specific designs of system solutions in a spectrum ranging from generic to fully simulated and stimulated applications. Customers can also expand the database of targets and exercise areas, and/or adapt it to meet their own requirements.

Flexible configuration of simulation allows training at various levels in different on-board systems (full mission, sub-team training or part task). Training sequence and complexity of the simulation are flexible and adaptable.

Rheinmetall can fully integrate all sensors and effectors into the simulation. Depiction of all standard sonar systems is possible. The simulated periscope and optronic masts look and feel identical to on-board systems.

Submarine simulation technology from Rheinmetall

Rheinmetall has been supplying the market for over 35 years, satisfying and continuously supporting its demanding client base with a full array of advanced solutions ranging from complete simulation/stimulation of original sonar, sensor, CMS and effector systems to emulation and low-cost generic replication of on-board systems in the form of a non-type-specific submarine operating training system.

The Group has longstanding expertise in the simulation of passive and active sonars, CMS and weapon systems such as torpedoes and missiles. Furthermore, Rheinmetall's core competencies include sonar simulation and interfaces to command and weapon engagement systems for conventional submarines.

Freely configurable scenarios are simulated in multifaceted tactical situations under a variety of operating conditions. In addition, the simulation enables identification, classification and engagement of targets based on realistic characteristics such as sound beam progression, noise simulation and range.

Rheinmetall: Bridging the gap between virtual reality and real world

Rheinmetall has been supplying the world's armed forces with simulation and training systems for ground, air and naval applications for decades, continuously perfecting

its state-of-the-art solutions. With over 2,000 systems in operation worldwide, Rheinmetall offers a comprehensive array of products, ranging from inexpensive PC-supported training systems to highly sophisticated full-mission simulators for surface, subsurface, aerial and land-based platforms, extending to simulation capabilities for fully networked joint and combined operations.

Building on its tremendous experience and expertise, Rheinmetall Defence bridges the gap between virtual reality and the real world, supplying training solutions that prepare personnel for their next mission.

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