CUBIC Technology Outlook

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Cubic's Precision Combat Training System to Revolutionize Training for Armored Crews

Cubic Defense Applications is producing an advanced precision gunnery system for Spanish and Canadian armies that will modernize the way tank crews train for battle.

The new Precision Combat Training System (PCTS) is a next-generation, state-of-the-art simulation system that can be used for both basic gunnery training and force-on-force exercises in rugged environments. It develops armored crews' gunnery techniques using eye-safe laser ammunition and maneuvering targets, while providing the highest level of accuracy, realism and fidelity possible.

Cubic will provide PCTS on Spanish Leopard 2E Main Battle tanks beginning in April. This will be followed by installations in Canada for the Weapons Effects Simulation (WES) combat training system.

At Wainwright in Alberta, PCTS equipment will be mounted on shooter and target vehicle platforms, including Leopard C2, LAV3 and LAV Coyote. The entire Canadian WES system, which also includes soldier instrumentation, tracking and communication systems, should be fully operational by spring 2006.

PCTS incorporates key technologies from Cubic's laser-based MILES system and methodologies gained from nearly 30 years fielding live combat training systems. Like MILES, PCTS simulates tactical engagements in any environment, providing a realistic training experience and reducing the opportunities for cheating. The system also accurately replicates the ballistic characteristics of the weapons fired – at maximum effective ranges – without having to constantly realign the system.

The PCTS training experience is supported by real-time feedback to the crews and immediate after-action reviews.

Among its key advantages, PCTS is the first of its kind to eliminate the need for retroreflectors at the targets and employ automatic "fire-and-forget" capabilities.

This technology enables the 'attacker' to engage a second threat immediately after firing as they would in actual combat.

Retroreflectors – a standard component of older

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systems – cause unrealistic delays between threat scenarios.

Retroreflectors require an optical line-of-sight between the shooter and target during flyout; therefore, the gun must stay pointed at a target for full projectile flyout duration before the vehicle crew could engage in the next threat. This could take up to five seconds – a delay that can be life-critical in combat.

PCTS overcomes this obstacle through the use of unique optical and radio-frequency communications as well as advanced tracking techniques.

With Cubic's system, the target simulates the ballistic flyout and tracks its own position to make a hit determination. The information is delivered within a few milliseconds of trigger pull, allowing the attacker to immediately move to the next target.

PCTS seamlessly supports both precision gunnery and maneuvering training with the same set of hardware and software.

The system's modular design also ensures easy adaptation to new weapons, munitions and countermeasures. PCTS is fully compatible with other Tactical Engagement Simulation (TES) systems and Combat Training Centers.

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