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Advanced Tactical Engagement Simulations Science and Technology Objective (A-TES STO)

Advanced weapon systems designed for future combat soldiers will be capable of hitting targets that are not in the line-of-sight. To accurately represent the effects of this indirect fire in future training simulations, researchers must develop new technologies. The best solution to this highly complex simulation challenge will be an affordable system that provides real-time training while minimizing the impact of new combat technology on communications bandwidth requirements, system power and weight and packaging of test and training systems.

IST and the U.S. Army Simulation, Training and Instrumentation Command (STRICOM) are researching the development of Advanced Tactical Engagement Simulations (A-TES), an Army Science and Technology Objective (STO). The expense of training with live rounds is constantly being driven upwards by escalating costs of sophisticated weapons. One of the goals of the A-TES STO is to allow the introduction of test and training simulations into live, virtual and constructive domains. A-TES

STO is targeted to provide an accurate and inexpensive means to simulate indirect "live" fire into field exercises where the training is performed with live “friendly” and “opposing” forces using simulated weapons.

A-TES STO will support the introduction of the Objective Individual Combat Weapon, the OICW, a revolutionary, ergonomically designed weapon system that can fire both kinetic energy projectiles and high-explosive air-bursting munitions. This weapon will enable the soldier to defeat enemy forces hiding in trenches and behind barriers. The OICW is expected to replace the M16 rifle in the Army’s 21st Century Land Warrior program. Although the OICW was chosen for the initial testing, A-TESs’ design is scalable to any indirect live training.

A-TES STO will use such emerging technologies as ultra wide band radio com-

munication to link weapon firing data to a central processing facility (CPF) during field training. The CPF will process location data transmitted from shooters and targets, determine the resulting casualties and transmit hit, miss or kill data back to the players. One of IST's tasks is to develop a visualization of this data to aid analysis.

A-TES Encyclopedia

The institute also is developing a Web-based encyclopedia to familiarize the interested reader with TES-related subjects as well as the A-TES program. Consisting of two parts, the encyclopedia provides information related to the evolution of the A-TES program and presents information and results generated during A-TES program testing and evaluation.

Material available for reference includes simulation descriptions, results, visualizations and analyses for the various Testbed Implementation Exercises (TIEs). TIEs bring together all aspects of the A-TES STO initiative in a series of focused activities. For example, one TIE might evaluate the applicability of a particular weapon aimpoint instrumentation package, whereas another TIE might develop an actual or simulated prototype A-TES system.

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