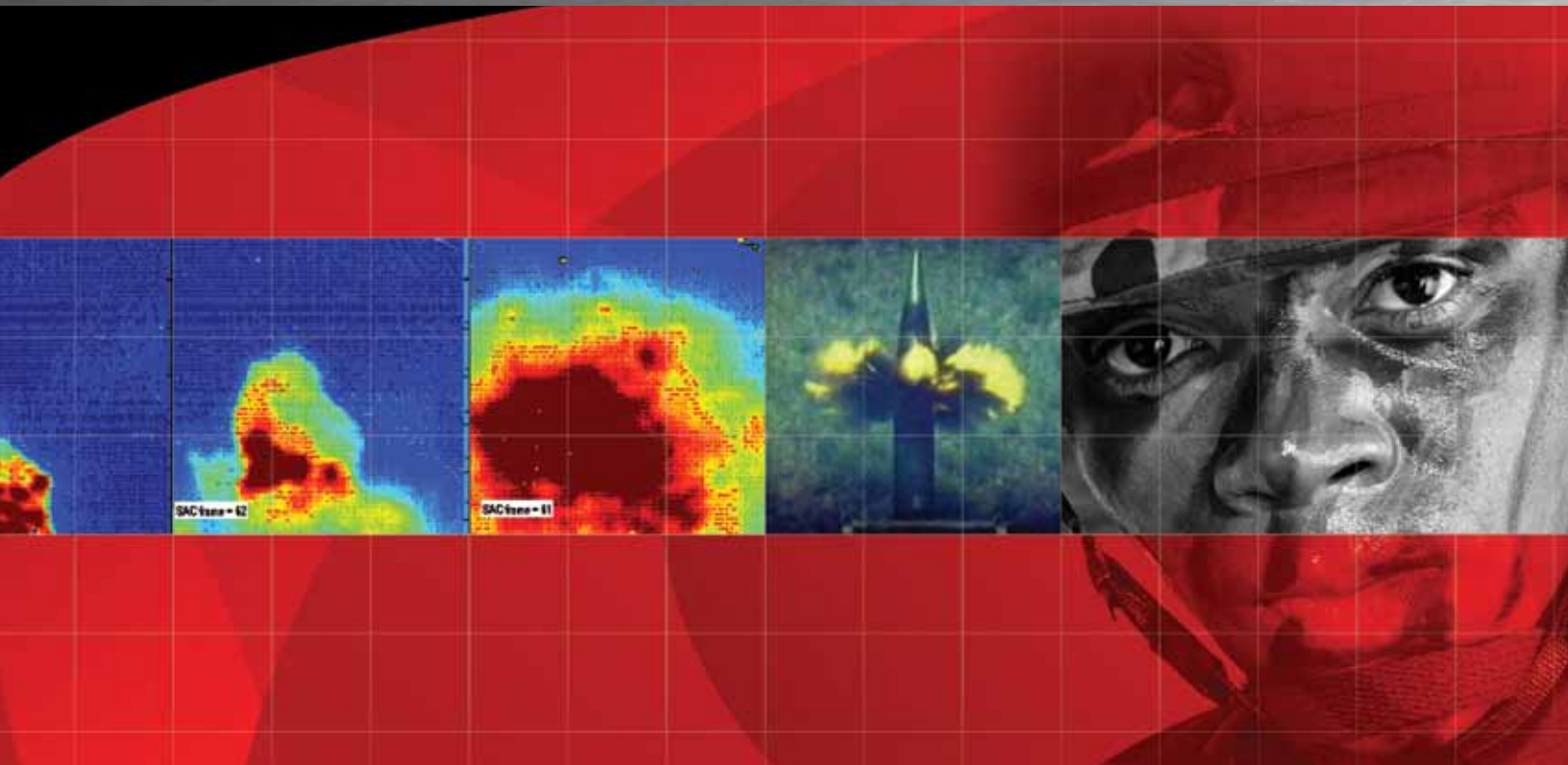




HEL Lethality

High Energy Laser Lethality



Summary

- Army Laser Lethality Program
- Solid State Laser Lethality
- Energetic Materials
- Precision Engagement
- Modeling & Simulation

Solid State Laser (SSL) Weapons will enable the Army unique strike capabilities that other weapons do not possess – lethality is key to bringing the right system to the fight.

The Army has identified the four areas for improvement ; 1) Defeat of Rockets, Artillery, and Mortars (RAM) In-flight 2) Defeat of Man-Portable Air Defense Systems (MANPADS) 3) Precision Engagement and 4) Defeat of Unmanned Aerial Vehicles (UAVs). Each of these mission gaps has a potential laser weapon solution. Trends show the increasing use by the enemy of UAVs, RAM, and MANPADS. Further, the enemy is using weapons in close proximity to non-combatants, preventing traditional counter-force operations. Laser weapons have the ability to neutralize these weapons while producing little to no collateral damage. Understanding the laser energy needed to neutralize these type of targets is the goal of the Army's High Energy Laser Lethality Program.

Overview

The Army Laser Lethality Program has two primary functions: 1) determine laser energy required for known kill methods and 2) develop new and innovative techniques for destroying targets with lasers. Results from the Army Laser Lethality Program will enable the Army to deploy the next generation of lightweight, highly effective laser weapons.

Benefits for Tomorrow's Defense

Directed-energy weapons are a natural next step in the transformation of the U.S. military. They provide a means for instantaneous target engagement, with extremely high accuracy and, in many instances, at very long range. These weapons support the more effective use of information by providing the warfighter with a broader set of effects that can be applied against a target. The collection and exploitation of large amounts of information, conduct of high-speed operations, an emphasis on long-range engagements, and the pursuit of extreme precision are all aspects of the new American way of war.

Technical Concept

Recent advances in SSL technology and other High Energy Laser (HEL) weapons technologies will set the stage for the deployment of Army tactical laser weapons for the warfighter. Understanding the vulnerability of a target to laser energy is paramount to bringing the right weapon to the field. The Army Lethality Program provides this data to the laser weapon designers in four steps. First, sub-scale experiments are conducted at DoD laboratories to provide proof of concept of the kill mechanism. Second, refinement of the kill mechanism is developed through detailed physics models. Third, full-scale tests of the kill mechanisms are done at national ranges such as the HEL Systems Test Facility at White Sands Missile Range (WSMR). And fourth, full-scale dynamic tests (i.e., tests in which the target is engaged in flight) are conducted to validate the kill mechanism.



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