



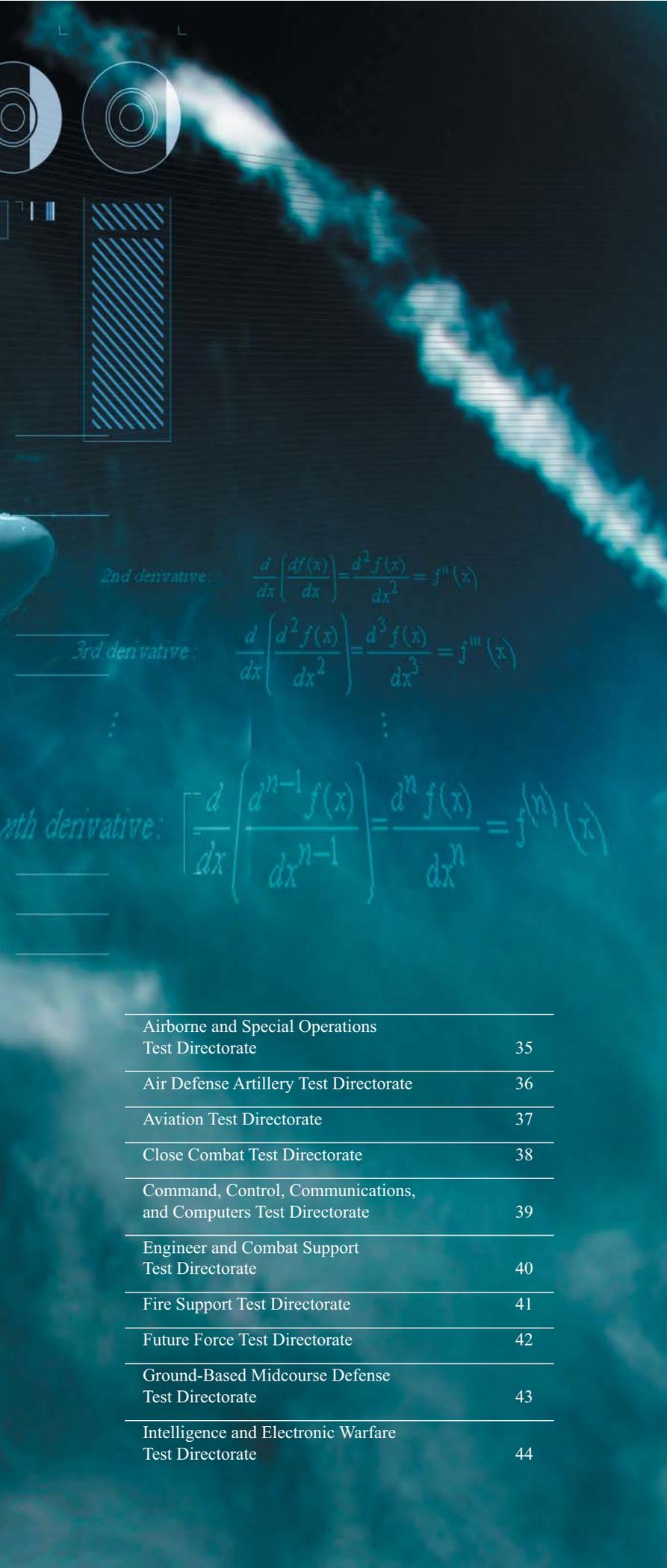
# ATEC

U.S. ARMY TEST AND EVALUATION COMMAND





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# Introduction

*Army Testing and Evaluation:  
Priorities shift to provide  
rapid support to the deployed Warfighter*

The U.S. Army Test and Evaluation Command (ATEC), headquartered in Alexandria, Va., continues its evolution to provide rapid support to today's American Warfighter while still meeting the Army's Transformation needs.

ATEC remains fully engaged in the traditional process of developmental testing, operational testing and evaluation to provide information for the acquisition decision makers. However, priorities have dynamically and seamlessly shifted, and capabilities have expanded to provide rapid support to the deployed Warfighter.

With the establishment of Forward Operational Assessment Teams and the Rapid Response Division, ATEC is providing direct test and evaluation support in combat zones to American Warfighters to ensure that the weapons, systems and technology meet their needs in Iraq and Afghanistan.

For additional copies of this brochure, contact USATEC, CSTE-OP (Marketing), 4501 Ford Avenue, Alexandria, Virginia 22302-1458.

[www.atec.army.mil](http://www.atec.army.mil)

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# History

On Nov. 18, 1998, the Vice Chief of Staff of the U.S. Army approved consolidation of developmental and operational testing. That decision led to the redesignation, on Oct. 1, 1999, of the Operational Test and Evaluation Command (OPTEC) to the Army Test and Evaluation Command (ATEC).

Central to the consolidation was ATEC assuming overall responsibility for Army testing. The Test and Evaluation Command (TECOM) became a major subordinate command of ATEC and was redesignated the U.S. Army Developmental Test Command (DTC), with DTC headquarters remaining at Aberdeen Proving Ground, Md. Also, the Test and Experimentation Command (TEXCOM) was redesignated the U.S. Army Operational Test Command (OTC), with OTC headquarters remaining at Fort Hood, Texas. The third ATEC redesignated subordinate command encompassed both the Operational Evaluation Command and the Evaluation Analysis Center, which were combined to form the U.S. Army Evaluation Center (AEC)—completing the earlier decision to move developmental and operational evaluation into a single, integrated command.

Under the consolidation, ATEC assumed responsibility for installation management of Dugway Proving Ground, Utah; White Sands Missile Range, N.M.; and Yuma Proving Ground, Ariz. On Oct. 1, 2002 the respective Installation Management Agency regional offices assumed that responsibility.

ATEC also took command of the Aberdeen Test Center (ATC) at Aberdeen Proving Ground; Redstone Technical Test Center at Redstone Arsenal, Ala.; Aviation Technical Test Center at Fort Rucker, Ala.; Electronic Proving Ground at Fort Huachuca, Ariz.; Cold Regions Test Center at Fort Greely, Alaska; and Tropic Regions Test Center, with headquarters at Yuma Proving Ground and testing at various tropic locations worldwide.

Since its formation, ATEC has played a major role in Army Transformation, with its most well-known success being the rapid development, testing, evaluation and subsequent fielding of the Stryker Combat Vehicle. ATEC continues to support Army Transformation through planning to test and evaluate the network-centric capabilities of the Army's Future Combat Systems.

While continuing to support Army Transformation, ATEC has made rapid support to the American Warfighter in Iraq and Afghanistan its number one priority. Standing up the ATEC Rapid Response Division and deploying OTC Forward Operational Assessment Teams to combat zones enables ATEC to quickly respond to the immediate needs of the Warfighter.

## Mission

ATEC plans, conducts and integrates developmental testing, independent operational testing, independent evaluations, assessments and experiments to provide essential information to the acquisition decision makers in support of the American Warfighter.

## Crest

The gridlines represent the scientific methodology and verification in the testing programs conducted by the Command. Black and silver denote the precision and clarity required in carrying out these programs. The wreath stands for high ideals. The balance scale denotes objectivity and represents the testing and evaluation mission of the Command. Blue stands for truth, and gold for excellence.



## Patch

The Command's mission—to seek truth through testing and experimentation—is symbolized by the triangle (or fulcrum) balancing a bar and sun. The bar and triangle represent a scale; the sun signifies the search for knowledge, enlightenment and high ideals. Yellow indicates the precious metal gold and represents the worth of quality assurance of tested products. Dark blue alludes to the sky and space, suggesting the possibilities and discoveries of the future. The red sword characterizes the individual Soldier, whose combat preparedness is aided by the data and information products the organization provides. The white expresses the Command's search for the truth and sterling quality of the products produced.



## ATEC's Wide Range of Customers

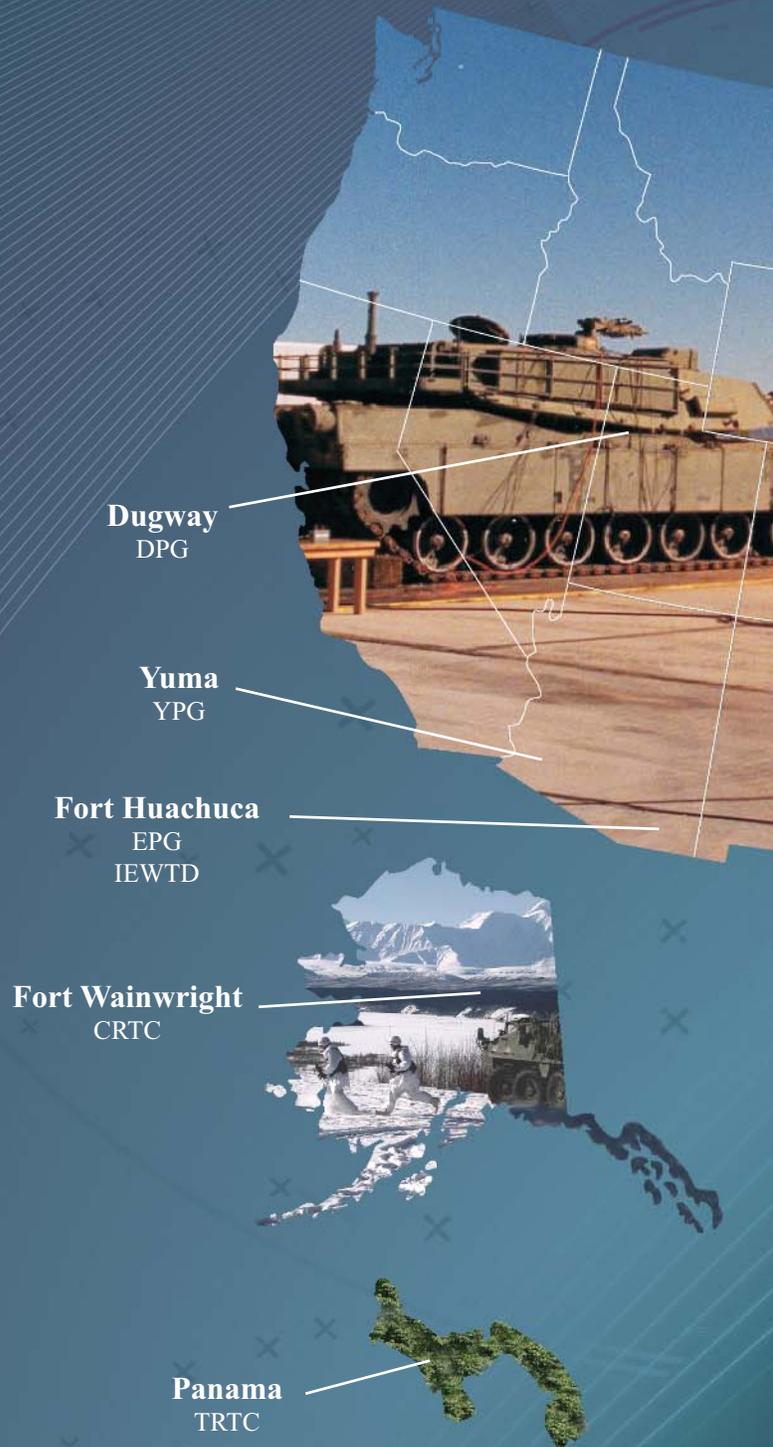
- ▶ The American Soldier
- ▶ Congress
- ▶ Chief of Staff and Vice Chief of Staff, U.S. Army
- ▶ Joint Chiefs of Staff
- ▶ Army G-3
- ▶ Assistant Secretary of the Army for Acquisition, Logistics, and Technology
- ▶ Program Executive Officer or Program Manager
- ▶ Director of Operational Test and Evaluation
- ▶ Undersecretary of Defense, Acquisition, Technology, and Logistics
- ▶ Director of Information Systems for Command, Control, Communications, and Computers
- ▶ Training and Doctrine Command
- ▶ Army Materiel Command
- ▶ U.S. Navy
- ▶ U.S. Air Force
- ▶ U.S. Marine Corps
- ▶ Ballistic Missile Defense Office
- ▶ Deputy Undersecretary of the Army for Operations Research
- ▶ Defense Threat Reduction Agency
- ▶ Allied Foreign Countries
- ▶ Academia
- ▶ Commercial Developers
- ▶ Manufacturers



# Organization

ATEC is located throughout the continental United States and Alaska, with approximately 1,100 tests ongoing in the United States and worldwide daily. The organizations listed below are shown on the adjoining map.

ABNSOTD	Airborne and Special Operations Test Directorate
ADATD	Air Defense Artillery Test Directorate
AEC	Army Evaluation Center
AMDED	Air and Missile Defense Evaluation Directorate
AMSCA	ATEC Mission Support Contracting Activity
ATC	Aberdeen Test Center
ATEC	Army Test and Evaluation Command
ATTC	Aviation Technical Test Center
AVED	Aviation Evaluation Directorate
AVTD	Aviation Test Directorate
C3ED	Command, Control and Communications Evaluation Directorate
C4TD	Command, Control, Communications and Computers Test Directorate
CCED	Close Combat Evaluation Directorate
CCTD	Close Combat Test Directorate
CRTC	Cold Regions Test Center
CSED	Combat Support Evaluation Directorate
DPG	Dugway Proving Ground
DTC	Developmental Test Command
ECSTD	Engineer and Combat Support Test Directorate
EPG	Electronic Proving Ground
FFED	Future Force Evaluation Directorate
FFTD	Future Force Test Directorate
FOA	Forward Operational Assessment
FSED	Fire Support Evaluation Directorate
FSTD	Fire Support Test Directorate
GMDTD	Ground-Based Midcourse Defense Test Directorate
HQ	Headquarters
IED	Intelligence Evaluation Directorate
IEWTD	Intelligence and Electronic Warfare Test Directorate
ILSED	Integrated Logistics Support Evaluation Directorate
ITED	Information Technology Evaluation Directorate
OTC	Operational Test Command
R&MED	Reliability and Maintainability Evaluation Directorate
RRD	Rapid Response Division
RTTC	Redstone Technical Test Center
SED	Survivability Evaluation Directorate
TRTC	Tropic Regions Test Center
TTD	Transformation Technology Directorate
WSMR	White Sands Missile Range
YPG	Yuma Proving Ground





**Aberdeen**  
HQ DTC  
ATC  
SED  
ILSED  
R&MED



**Alexandria**  
HQ ATEC  
HQ AEC  
AVED • AMDED  
IED • CCED  
CSED • FFED • FSED  
ITED • C3ED

**Fort Bragg**  
ABNSOTD

**Redstone Arsenal**  
RTTC

**Fort Rucker**  
ATTC

**Huntsville**  
GMDTD

**Fort Sill**  
FSTD

**Fort Hood**  
HQ OTC  
ECSTD • AVTD  
CCTD • C4TD  
FFTD  
TTD  
AMSCA



**White Sands**  
WSMR  
**Fort Bliss**  
ADATD



**Iraq**  
FOA Teams

**Kuwait**  
FOA Teams

**Afghanistan**  
FOA Teams

# Evaluations

## U.S. Army Evaluation Center

Alexandria, Virginia

Aberdeen Proving Ground, Maryland

### Who We Are

- ▶ The Army's premier evaluation organization affecting all Army modernization and transformation research, development and acquisition programs—totaling approximately \$6 billion
- ▶ Six Support Staff Divisions: Technical Operations, Resource Management, Human Resources Development, Methodology and Analysis, Technical Editing and Technical Support Modeling and Simulation
- ▶ An almost 500-member civilian and military team that plans, programs, coordinates and executes integrated evaluations in 12 directorates
  - Air and Missile Defense Evaluation Directorate (AMDED)—Army Air and Missile Defense systems and operational evaluation for joint AMD programs, i.e., Ballistic Missile Defense systems
  - Aviation Evaluation Directorate (AVED)—Aviation systems operational effectiveness, suitability and survivability
  - Close Combat Evaluation Directorate (CCED)—Infantry/Soldier systems, Mounted Maneuver, Interim systems and Weapons/Munitions programs
  - Combat Support Evaluation Directorate (CSED)—Combat Support (CS) and Combat Service Support (CSS) systems
  - Command, Control and Communications Evaluation Directorate (C3ED)—Army and Joint Command, Control and Communications systems
  - Fire Support Evaluation Directorate (FSED)—Army Fire Support systems
  - Intelligence Evaluation Directorate (IED)—Intelligence-related acquisition programs

- Information Technology Evaluation Directorate (ITED)—Automated Information Systems (AIS)
- Integrated Logistics Support (ILS) Directorate—System's logistics operational effectiveness, suitability and survivability
- Reliability and Maintainability Evaluation Directorate (R&MED)—Reliability, Availability and Maintainability (RAM) system characteristics for major defense acquisition programs
- Survivability Evaluation Directorate (SED)—survivability and vulnerability/lethality of Army and designated joint systems
- Future Force Evaluation Directorate (FFED)—Future Force and Army Transformation acquisition programs.

### What We Do

- ▶ Plan and conduct independent evaluations and assessments of acquisition programs
- ▶ Develop the evaluation strategy, test design and evaluations addressing operational effectiveness, suitability and survivability
- ▶ Conduct continuous evaluation throughout the acquisition lifecycle of systems
- ▶ Provide evaluation information to key Department of Defense (DoD) decision makers
- ▶ Work in harmony with the materiel acquisition community to best achieve our evaluation mission
- ▶ Provide rapid response analysis more than 80 Rapid Equipping Force (REF) initiatives
- ▶ Provide Military Utility Assessments (MUA) for the Warfighter's urgent needs in Iraq and Afghanistan
- ▶ Chair 99 percent of ATEC System Teams (AST), which guide the Initial Test and Evaluation effort
- ▶ Support Combatant Commands (COCOM) major training exercises in assessing Information Assurance (IA).



*Patriot Advanced Capabilities-3 missile launches during Developmental Test 12 at White Sands Missile Range, N.M. (U.S. Army photo)*

## Major Test Programs

- ▶ Army Battle Command Systems (ABCS) planning
- ▶ Ballistic Missile Defense System (BMDS) Limited Deployment Capability (LDC) assessment
- ▶ Future Combat System (FCS) restructure test and evaluation plan
- ▶ Stryker reliability; Stryker variants, including Mobile Gun System (MGS)
- ▶ Up-armor wheeled vehicles
- ▶ Counter-Improvised Explosive Device (IED) measures.

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# Developmental Testing

## U.S. Army Developmental Test Command

Aberdeen Proving Ground, Maryland

*Offers a Full Range of Test Services*

### Who We Are

- ▶ The Army's premier technical tester
- ▶ Department of Defense (DoD) largest, most diverse array of testing capabilities
- ▶ Nine subordinate test centers providing the full spectrum of arctic, tropic, desert and other environments under natural or precisely controlled conditions
  - Aberdeen Test Center (ATC), Aberdeen Proving Ground, Md.
  - Aviation Technical Test Center (ATTC), Fort Rucker, Ala.
  - Cold Regions Test Center (CRTC), Fort Wainwright, Alaska
  - Dugway Proving Ground (DPG), Utah
  - Electronic Proving Ground (EPG), Fort Huachuca, Ariz.
  - Redstone Technical Test Center (RTTC), Redstone Arsenal, Ala.
  - Tropic Regions Test Center (TRTC) HQ, Yuma Proving Ground, Ariz.
  - White Sands Missile Range (WSMR), N.M.
  - Yuma Proving Ground (YPG), Ariz.

### What We Do

- ▶ Provide a full range of technical support, including:
  - Collect unbiased test data on the technical feasibility of early concepts
  - Assess system performance and safety
  - Assess technical risks during system development

- Confirm designs
- Validate manufacturers' facilities and processes at both the system and component level.
- ▶ Design and develop test technology, methods and instrumentation
- ▶ Conduct Distributed Test Events
- ▶ Test weapons and equipment as they are being developed and engineered
- ▶ Provide rapid support to our ultimate customers—the men and women of the U.S. armed services at home and deployed
- ▶ Provide expertise to all DoD organizations; other Federal agencies; local, state, and foreign governments; and academia and private industry
- ▶ Support acquisition programs through efficient and cost-effective test planning and test programs
- ▶ Support development of acquisition strategy, statement of work, performance specification and test/simulation execution strategy
- ▶ Test equipment and systems under a variety of conditions and possible uses to ensure the safety of Soldiers and operators
- ▶ Report safety risks and recommend any use restrictions that enhance safety.

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*Slat Armor provides the Stryker Combat Vehicle with an effective defense against attack by Rocket-Propelled Grenades (RPG). The rapid development and testing of Slat Armor for Strykers being deployed to Iraq was a major project of DTC. (U.S. Army photo)*



*A Task Force Liberty Soldier from 3<sup>rd</sup> Infantry Division stands guard in an M3A3 Bradley Fighting Vehicle near an Iraqi police checkpoint in Tikrit, Iraq. The Bradley is just one of the major weapon systems tested by DTC. (Photo by Sgt. Matthew Acosta)*



## Developmental Test Command Supports Transformation of the American Warfighter

The Developmental Test Command's (DTC) Soldiers and civilians provide critical support to the American Warfighter. Military systems tested at DTC that have played a key role in the Soldier's transformation into the modern Warfighter include:

- ▶ Abrams tank
- ▶ Stryker family of combat vehicles
- ▶ Apache, Black Hawk and Chinook helicopters
- ▶ Blue Force Tracking (friendly forces identification)
- ▶ Bradley Fighting Vehicle
- ▶ High Mobility Multi-purpose Wheeled Vehicle (HMMWV)
- ▶ Javelin Missile
- ▶ Patriot Advanced Capability III (PAC III) Missile
- ▶ Joint Direct Attack Munition
- ▶ Army Tactical Missile System
- ▶ Semi-active LASER Brilliant Anti-Tank Munitions
- ▶ Common Remotely Operated Weapon Station (CROWS)
- ▶ Unmanned Aerial Systems (UAS)
- ▶ Improved Ribbon Bridge
- ▶ Chemical/biological agent decontaminant
- ▶ Airborne Agent Detection System
- ▶ Embedded Global Positioning System
- ▶ Aircraft Inertial Navigation System
- ▶ XM983 and the XM930 120-mm infrared illuminating cartridges.

The Stryker test program was particularly challenging because of the short time line for fielding. DTC test centers worked extended shifts, enabling the Army to field diverse Stryker configurations in time for Soldier training before deploying to Iraq.

Expedited testing led to modifications in other systems used in Iraq, including:

- ▶ Design, fabrication and testing of Stryker Slat Armor

- ▶ Automotive and ballistic testing of the up-armored HMMWV
- ▶ Armor kits for HMMWVs and other tactical wheeled vehicles.

Slat Armor proved to be a success almost immediately after Stryker Brigade Combat Teams arrived in Iraq. Rocket-propelled grenades fired into Stryker cage-like Slat Armor detonated without penetrating the vehicles.

The Meteorology Division of DTC's Dugway Proving Ground (DPG) tested a new capability called Global Meteorology on Demand (GMOD). For troops in Iraq, the GMOD system yielded high-resolution analyses of current conditions and 24-hour forecasts updated every 3 hours.

DTC's Yuma Proving Ground (YPG), located in one of the most arid and rugged regions of Arizona, has tested a variety of systems in support of Operation Iraqi Freedom. These include:

- ▶ Stryker
- ▶ Hellfire Missile
- ▶ M198 Towed Howitzer
- ▶ UAS.

YPG is significantly involved in testing new technologies to detect and defeat the Improvised Explosive Devices (IED) that continue to plague American and coalition forces in Iraq.

Tests are conducted on the new Joint Experimentation Range Complex (JERC), a 30,000-acre YPG test site that greatly resembles Iraq in both climate and terrain. Monthly range temperatures are within a degree or two of Baghdad, the Iraqi capital.

The JERC site, designed partly from satellite photos of Baghdad, consists of 227 buildings and many aspects of the Iraqi infrastructure, including power lines, roads and overpasses. Multi-million dollar expansion plans call for another 125 adobe buildings, a train station and a bus station. Soldiers and Marines training at the JERC site gain valuable "Iraqi-city" experience before deployment.

Colorado river locations at YPG were training areas for U.S. Marine Corps engineers, who later built combat bridges across rivers in Iraq.

See the DTC website at [www.dtc.army.mil](http://www.dtc.army.mil)



*Soldiers with Task Force 1-501<sup>st</sup> patrol in Afghanistan in support of Operation Avalanche. DTC tested this HMMWV and the Soldier's individual weapon. (Photo by Gul Alisan)*



*A roadside explosion at the JERC at Yuma Proving Ground simulates the hazards faced by Soldiers in Iraq. The complex is designed to help the Army counter the threats from IEDs and other explosive materials. (YPG photo)*

## Developmental Test Command Demonstrates Network-Centric Capabilities for Testing FCS

As the Army and defense contractors collaborate to make Future Combat Systems (FCS) a reality, the Army Test and Evaluation Command (ATEC) and its Developmental Test Command (DTC) are developing state-of-the-art capabilities to simulate, model and test the performance of FCS as a system of systems.

Because these systems are expected to operate and communicate with each other across the battlefield in a “seamless network,” the Army faces the challenge of conducting testing that mirrors this network-centric vision of combat operations. During the past 10 years, DTC has orchestrated various test exercises and developed innovative modeling and simulation capabilities focused on realistic, network-centric testing that will assure FCS systems meet the needs of the Future Force and its Soldiers.

The centerpiece of these efforts is the Virtual Proving Ground (VPG), an array of technologies and programs across DTC that allow testers to model and simulate the operation of military systems using realistic scenarios. Partnering with other Army organizations and defense contractors, DTC conducted a series of four increasingly complex test exercises with the aid of the VPG’s Synthetic Environment Integration Testbed (SEIT). The demonstrations proved DTC capabilities to conduct distributed test operations—with a mix of live, virtual and constructive elements—at various test centers operating under a common operational battlefield scenario, which is necessary for the development of FCS.

Distributed Test Event 4, conducted last year, included both Boeing and Science Applications International Corporation (SAIC), the two corporations that have teamed to be the lead system integrator (LSI) for FCS development. It also was the first Distributed Test Event to include all of ATEC’s subcommands—DTC, the Army Evaluation Center (AEC) and the Operational Test Command (OTC). Evaluators from the AEC were at each test site to observe actions and record their observations, and OTC monitored simulated battle events. Testers at locations ranging from Southern states to the Pacific Northwest took part in the event.

Orchestrating a complex test event across two or more test centers requires centralized command and control—from ensuring actions start and stop on time to managing the communications network that keeps test participants in communication. DTC created its Inter-Range Control Center (IRCC) at the J.W. Cox Range Control Center at White Sands Missile Range (WSMR), N.M. Each DTC Test Center participating in a Distributed Test Event interfaces with the IRCC through its own test control center.

A follow-on Distributed Test Event is planned involving joint test and evaluation during a joint military operational scenario. DTC is working in partnership with the other U.S. military service branches; ATEC; the Army Training and Doctrine Command; the Research, Development and Engineering Command; their subordinate Army organizations; and the FCS Lead System Integrator to lay the groundwork for joint military test and evaluation using future joint operational scenarios.

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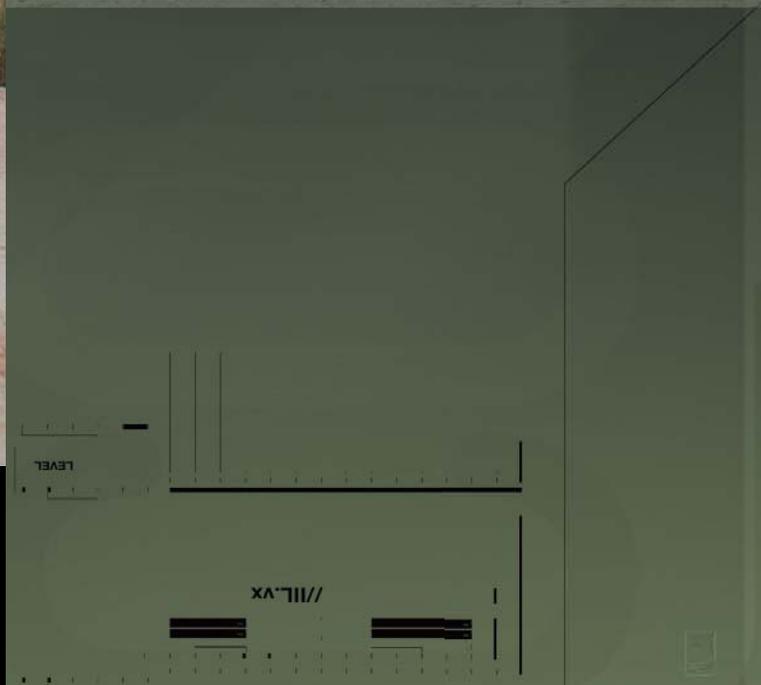
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*A network engineer follows the progress of the Distributed Test Event 4 from his workstation at DTC’s Redstone Technical Test Center. (Photo by Mike Cast)*



*The Non-Line-of-Sight Cannon fired during a test at Yuma Proving Ground was linked into one of the distributed tests the Army conducted to demonstrate capabilities for testing a system of systems. (YPG Public Affairs photo)*



## Aberdeen Test Center

Aberdeen Proving Ground, Maryland

*A Department of Defense Diverse Test Facility*

### Who We Are

- ▶ A Major Range and Test Facility Base (MRTFB) test center
- ▶ The Army's Center of Excellence for live-fire testing
- ▶ The Department of Defense's (DoD) lead direct-fire test center
- ▶ DoD's lead land systems test center
- ▶ Accredited Federal laboratory and leading center for technology transfer and dual-use partnerships with other DoD components, industry and academia.

### What We Test

- ▶ 80 percent of the Army's automotive systems
- ▶ Live-fire vulnerability/lethality
- ▶ Soldier systems and support equipment
- ▶ Military firepower systems and munitions (direct fire and small arms)
- ▶ Systems for Federal, state, local and foreign governments, academia and private industry.

### Major Test Programs

- ▶ Automotive and ballistic testing for various Stryker configurations
- ▶ Design, fabrication and testing of Stryker Slat Armor
- ▶ Rapid testing of up-armored "Humvees" and armor kits for light, medium and heavy tactical vehicles
- ▶ Alternative small-arms lubricants for desert environment
- ▶ Develop Versatile Information System, Integrated ONline (VISION), to facilitate Future Combat Systems (FCS) testing
- ▶ Develop modeling and simulation capabilities to support FCS testing
- ▶ System-of-system distributed test events and experimentation
- ▶ Soldiers' personal protective systems

- ▶ Collaboration with industry to develop the Roadway Simulator, the world's largest flat-track simulator
- ▶ System safety releases and confirmations.

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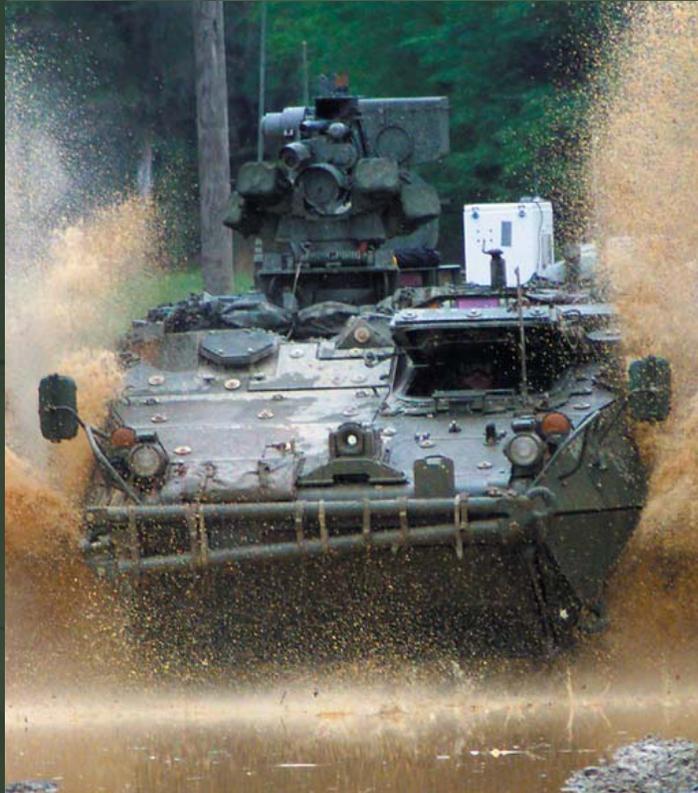
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*"My vehicle was directly engaged with heavy small-arms fire, receiving multiple hits on the driver's windshield. The vehicle also took a few hits on the doors and windows protecting us from the side. We drove out of the ambush alive . . . your (test and evaluation team) increased my odds."*

---

1<sup>st</sup> Sgt. Michael Brown, E Company, 115<sup>th</sup> Forward Support Battalion, 1<sup>st</sup> Cavalry Division





*Aberdeen Test Center (ATC) tested the Stryker's automotive performance on temperate-climate roadways such as the Perryman Test Course shown here. ATC also conducted rigorous Stryker ballistic testing. (ATC photo)*



*ATC tested the Wolverine bridge before it was deployed during Operation Iraqi Freedom. It enabled U.S. forces to cross dry gullies and other low spots in the Iraqi desert. The Wolverine's launcher, operated by a two-person crew, is mounted on the same chassis used for M1A2 System Enhancement Program Abrams tanks. (ATC photo)*



# Army Aviation Technical Test Center

Fort Rucker, Alabama

*Testing Above the Best*

## Who We Are

- ▶ The Army's premier agency for aviation testing and test-support services throughout the acquisition, modernization and sustainment lifecycle of military aircraft
- ▶ A center of Army aviation expertise with test facilities, including more than 220,000 square feet of workspace at Fort Rucker and Redstone Arsenal, Ala. and a local flying area greater than 32,000 square miles.

## What We Test

- ▶ Aviation system performance in flight and through simulation
- ▶ Aircraft handling qualities
- ▶ Aircraft integration of aviation systems
- ▶ Human factors engineering and system safety
- ▶ Digital communications systems
- ▶ Aircraft handling under icing and rain conditions.

## Major Test Programs

- ▶ Multi-Aircraft Common Missile Warning System integration
- ▶ UH-60M Black Hawk airworthiness
- ▶ UH-60 Black Hawk and AH-64 Apache GE 701D Engine upgrades
- ▶ AH-64D Longbow Apache Modernization Block 3
- ▶ CH-47 Chinook infrared exhaust suppression
- ▶ OH-58D Kiowa Computer Display Software Version 4
- ▶ Armed Reconnaissance Helicopter
- ▶ Light Utility Helicopter system
- ▶ Future Cargo Aircraft.

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*U.S. Air Force Para-rescuers practice fast-roping from an HH-60 Pave Hawk helicopter during a Search-and-Rescue training exercise at Baghdad International Airport. The Aviation Technical Test Center (ATTC) tested the performance and airworthiness of the UH-60 Black Hawk, its variations such as the Pave Hawk and other Army aircraft. (Photo by Airman 1<sup>st</sup> Class Brian Ferguson)*



*A JCH-47D Chinook with the improved infrared exhaust suppression is paced by ATTC's highly instrumented T-34C Mentor. The test aircraft flies a series of precise altitudes and airspeeds, and the Mentor flies close beside it. Both aircraft record the points measured. (Photo by Paul Reynolds)*

## Cold Regions Test Center

Fort Wainwright, Alaska

*DoD's Natural Cold Environment Test Facility*

### Who We Are

- ▶ The Department of Defense (DoD) premier tester for all systems to be fielded in a cold environment, including:
  - Manned and unmanned ground vehicles
  - Weapon systems and munitions
  - Soldier equipment.
- ▶ An environment providing synergistic effects of temperature, wind and snow in an area large enough to represent winter warfare
- ▶ Ranges with more than 1,000 square miles of impact area and maneuver space, and a designated user of range airspace at Fort Wainwright, Alaska
- ▶ Facilities include a 3.2-mile test track with skid pad and test slopes and an 800-foot Unmanned Aerial Systems (UAS) Landing Strip.

### What We Test

- ▶ Tracked and wheeled vehicles
- ▶ Direct- and indirect-fire weapons
- ▶ Soldier systems and support equipment.

### Major Test Programs

- ▶ All Stryker configurations, including firing weapon systems
- ▶ Support fielding of Strykers to U.S. Army Alaska through cold-weather testing and interaction with Stryker Brigade Combat Team soldiers
- ▶ The XM8 rifle
- ▶ The M577E1 Lightweight Howitzer, Guided Multiple Launch Rocket System and Stryker Mortar Carrier-B

- ▶ Operational tests and demonstrations, including the Rapidly Emplaced Bridge System
- ▶ Brake and skid-pad testing for commercial customers.

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*The Cold Regions Test Center (CRTC) continues to support the Stryker program and the U.S. Army Alaska Stryker Brigade by testing Stryker vehicles in typical winter conditions of wind and blowing snow. These Stryker vehicles are accumulating durability miles on CRTC's paved 3.2-mile test track. (CRTC photo)*



*A launch of the Javelin missile during winter testing. The CRTC's testing of the Javelin resulted in manufacturing changes that increased the reliability of the weapon. (CRTC photo)*



*The Armored Security Vehicle undergoes brake testing in the snow at CRTC. The CRTC provides continuing testing of modifications and upgrades to this vehicle. (CRTC photo)*

# Dugway Proving Ground and West Desert Test Center

Dugway, Utah

*The Nation's Chemical and Biological Defense Proving Ground*

## Who We Are

- ▶ The Department of Defense (DoD) lead tester for:
  - U.S. and allied chemical and biological defense equipment
  - Nuclear Biological Chemical contamination survivability.
- ▶ DoD Major Range and Test Facility Base with more than 1,247 square miles of ranges and test facilities—including 9 drop zones, 91 artillery firing points, 4 major impact areas, more than 9,100 square miles of restricted airspace and a 7,000-foot runway capable of handling all military aircraft
- ▶ Program Manager for Army Research Test and Evaluation Meteorology.

## What We Do

- ▶ Conduct chemical and biological protection, detection and decontamination testing for joint services, combatant commands and other agencies
- ▶ Support the chemical and biological (CB) weapons conventions
- ▶ Manage the development of CB defense models and validation tests
- ▶ Test munitions, smoke and obscurant systems and illumination devices for joint services.

## Major Test Programs

- ▶ Chemical
  - Stryker Nuclear Biological and Chemical Reconnaissance Vehicle
  - Joint Service Lightweight Suit Technology
  - Joint Protective Aircrew Ensemble
  - Joint Service Chemical Environmental Survivability Mask
  - Joint Service Family of Decontamination Systems

- Joint Service Lightweight Standoff Chemical Agent Detector
- Joint Chemical Agent Detector
- Future Combat System.

### ▶ Biological

- Joint Biological Point Detection System
- Joint Biological Agent Identification and Detection System
- Joint Biological Standoff Detection System
- Critical Reagent Program
- Whole System Live Agent Test
- FBI and EPA anthrax investigation/decontamination
- Centers for Disease Control pathogen sampling.

### ▶ Meteorological

- Four-Dimensional Weather System Development
- Defense Threat Reduction Agency Modeling Program.

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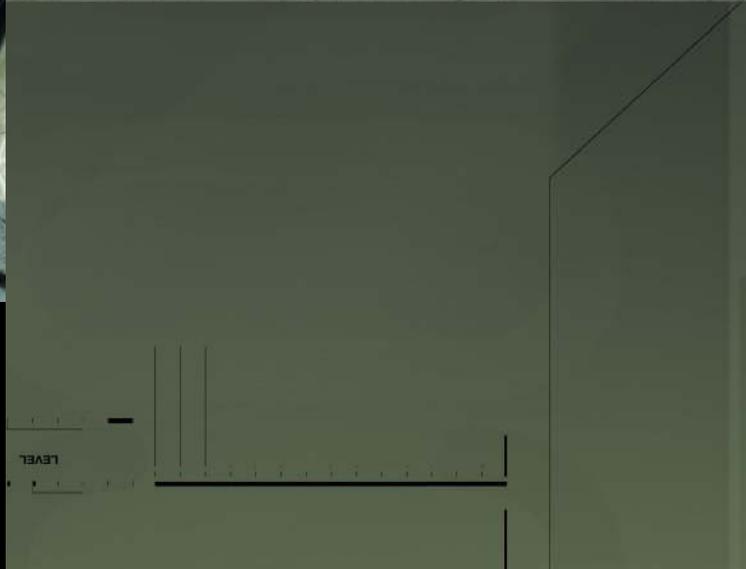
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*The West Desert Test Center at Dugway Proving Ground (DPG) is instrumental in testing Mission-Oriented Protective Posture equipment, helping U.S. service members be as safe as possible in the event of chemical or biological attack. (Photo courtesy of the Joint Combat Camera Center)*



*The Advanced Gun System (AGS) is installed on a 40-foot concrete pedestal at DPG's West Desert Test Center in preparation for testing. The 155-mm gun is fully automated and fires the Long Range Land Attack Projectile, a GPS-guided projectile under development. (Photo by Al Vogel)*

## Electronic Proving Ground

Fort Huachuca, Arizona

*The Army's C4I Developmental Tester*

### Who We Are

- ▶ The Army's developmental tester for:
  - Command, Control, Communications, Computer and Intelligence (C4I) Systems
  - Global Positioning and Navigation Systems
  - Intelligence and Electronic Warfare Systems
  - The Global Information Grid.
- ▶ Arizona test facilities, ranges and airspace comprise more than 109 square miles of Fort Huachuca, 36 square miles on Wilcox Dry Lake and more than 156 square miles at Gila Bend.

### What We Do

- ▶ Provide quick reaction test support to real world missions and homeland defense
- ▶ Plan, conduct, and analyze technical tests for complex electronic equipment and systems
- ▶ Provide test support to other service branches, Government agencies and civilian industry
- ▶ Test electromagnetic effects of electronics and information processing systems
- ▶ Test distributed networks and systems of systems.

### Major Test Programs

- ▶ Electronic Counter-IED systems
- ▶ Unmanned Aerial Systems (UAS)
- ▶ Stryker family of vehicles
- ▶ Global Positioning System (GPS)
- ▶ Joint Tactical Radio System (JTRS)
- ▶ Force XXI Battle Command Brigade-and-Below (FBCB2) and Blue Force Tracking (BFT)
- ▶ Warfighter Information Network-Tactical (WIN-T)
- ▶ Army Airborne Command and Control System (A2C2S)
- ▶ Army Battle Command System (ABCS)

- ▶ Fast turn around for Rapid Equipping Force (REF) programs
- ▶ Distributed network and information grid supporting Future Combat Systems.

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*An Air Force non-commissioned officer provides fire commands to an attacking A-10 during a training exercise. Command and control, communications, intelligence, surveillance and reconnaissance systems that enable joint-forces military operations have undergone testing at DTC's Electronic Proving Ground. (Photo by Tech. Sgt. Kevin J. Gruenwald)*



*A 3<sup>rd</sup> Infantry Division Soldier loads radio frequencies on the communications systems in a Bradley Fighting Vehicle before a mission in Iraq. The Army DTC's Electronic Proving Ground has long been at the forefront of testing developmental software and hardware for military communication systems. (Photo by Staff Sgt. Suzanne M. Day)*

## Redstone Technical Test Center

Redstone Arsenal, Alabama

*An Army Leader in Missile Systems Testing*

### Who We Are

- ▶ The Army's foremost tester of small rockets, missiles and weapon components and subsystems
- ▶ A premier test organization for unmanned and remotely operated weapon and sensor systems
- ▶ One of the Army's chief technical testers for aviation subsystems and components
- ▶ A center of expertise for testing lightning's effects on explosive and hazardous materials.

### What We Do

- ▶ Operate the Army's largest static rocket-motor test facility
- ▶ Provide complete test capabilities for small rocket and missile systems, including flight, warhead and motor performance
- ▶ Conduct static and dynamic testing of warheads and fuzes
- ▶ Test airworthiness of Army aircraft components and subsystems for safety, qualification and reliability
- ▶ Verify component, subsystem and system performance before flight-testing
- ▶ Test environmental and electromagnetic environmental-effects on sensor systems such as radars and electro-optical components
- ▶ Test sensor/seeker/designators for weapon systems and homeland defense systems
- ▶ Test under simulated battlefield conditions.

### Major Test Programs

- ▶ Javelin Anti-Armor System
- ▶ Hellfire/Longbow Missile, Patriot Missile and Theater High Altitude Area Defense Missile Systems (THAADs)
- ▶ RAH-66 Comanche, UH-60 Black Hawk and AH-60 Apache helicopters
- ▶ Extended system integration testing for the High Mobility Artillery Rocket System (HIMARS)

- ▶ Future Combat Systems technology
- ▶ Tactical Unmanned Aerial Systems (UAS) and Unmanned Ground Vehicles.

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*A Bradley Fighting Vehicle fires a Tube-launched, Optically-tracked, Wire-guided (TOW) missile at the Redstone Technical Test Center (RTTC), Redstone Arsenal, Ala. RTTC is an Army center of expertise for testing small missiles and rockets. (RTTC photo)*



*Marines deployed for Operation Iraqi Freedom fire a Javelin Anti-Tank missile. The Army's Redstone Technical Test Center in Alabama tested the effectiveness of the Javelin and similar systems for use by Marines and Soldiers. (Photo by Sgt. Mauricio Campino)*

## Tropic Regions Test Center

*DoD's Tropic Test Facility*

### Who We Are

- ▶ The Department of Defense (DoD) lead tester for materiel and systems in tropical environments
- ▶ Operator of test facilities in selected worldwide tropical regions
- ▶ Headquarters at Yuma Proving Ground (YPG), Ariz.

### What We Do

- ▶ Maintain an array of test areas in a variety of jungle and tropical open lands and coastal environments
- ▶ Test Army and joint-program systems and materiel in tropical environments
- ▶ Challenge weapons and other systems with real-world tropic effects that include:
  - Insects
  - Destructive fungi
  - Bacteria
  - Heavy rains
  - High temperatures and high humidity levels.
- ▶ Test Soldier systems in tropic environments to assess:
  - Durability
  - Performance
  - Reliability
  - Suitability
  - Human factors.
- ▶ Conduct portability and mobility tests to evaluate:
  - System ruggedness
  - System and component effectiveness
  - Small team effectiveness.
- ▶ Combine the realism of operational test principles with the control of developmental testing techniques
- ▶ Test environmental military technologies.

### Major Test Programs

- ▶ Small arms
- ▶ Joint Soldier/service member-system programs
- ▶ Chemical/biological defense systems
- ▶ Sensor and communications systems
- ▶ Industry collaboration to develop heavy-vehicle tropic testing capabilities.

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*The Developmental Test Command's Tropic Regions Test Center helps the U.S. military ensure that weapons, equipment and uniforms can withstand a tropical environment. (Photo by U.S. Navy Photographer's Mate 3<sup>rd</sup> Class John Curtis)*



*Factors such as moisture, heat, rot and even insects can affect the performance of military systems, so the Army, with other military services, tests weapons and equipment in tropical regions around the world. (Photo by USAF Tech. Sgt. Cecilio M. Ricardo Jr.)*

# White Sands Missile Range

New Mexico

*DoD's Premier All-Overland Test Range*

## Who We Are

- ▶ A joint, interagency and multi-national test range
- ▶ The largest Department of Defense (DoD) overland test range, with 3,200 square miles
- ▶ The central node and primary viewing portal for the Army's Distributed Test Capability, in which live and simulated test data can be combined, analyzed and distributed to test sites
- ▶ A one-stop test location supporting all aspects of system design, development and fielding in support of the Warfighters
- ▶ A national historic site where the United States entered the atomic and space ages.

## What We Do

- ▶ Operate Complex Ranges
  - Complex and multi-mission command and control
  - Comprehensive laboratory, launch and live fire sites
  - DoD restricted airspace with full command and control authority
  - Explosive Ordnance Disposal
  - Weapons, flight and radiation safety determination
  - Meteorology.

## What We Test

- ▶ Systems Performance
  - Test design, planning and conduct
  - Data reduction, display and analysis
  - System software validation and configuration management
  - Human factors and safety.
- ▶ Instrumentation and Data Acquisition
  - Technology development
  - Long range/high altitude electro-optics
  - High speed digital visible/infrared

- Telemetry—fixed and mobile
- Laser, radio frequency and high power microwave
- Radar and global positioning system.

### ▶ Threat Presentation and Lethality

- Full-scale and sub-scale aerial targets
- Urban and unconventional targets
- Warhead impact areas
- Target effects measurements
- Threat simulations
- Ballistic missile target operations.

### ▶ Operational Environments

- Service life shock and vibration
- Missile thrust and safety performance
- Systematically controlled conditions.

### ▶ Survivability and Vulnerability

- Electromagnetic radiation and emissions
- High altitude electromagnetic pulse
- Direct strike lightning
- Laser protection and effects
- Jamming and compatibility.

### ▶ Nuclear Effects and Characterization

- Full range of required nuclear environments
- Weapons and components survivability
- Space components radiation effects
- Missile defense sensors and electronics
- Fielded system sustainability
- Radiation tolerance program.

## Major Test Programs

- ▶ Multiple Launch Rocket System
- ▶ High Mobility Artillery Rocket System
- ▶ Line-of-Sight Anti-Tank System
- ▶ Stryker Infantry Carrier Vehicle
- ▶ Patriot Advanced Capability 3 Missile
- ▶ Terminal High Altitude Area Defense System
- ▶ Mobile Tactical High Energy Laser System
- ▶ U.S. Navy Standard Missile

- ▶ Tomahawk Cruise Missile
- ▶ Joint Air-to-Surface Standoff Missile
- ▶ Joint Unmanned Combat Air Systems
- ▶ U.S. Air Force Airborne Laser
- ▶ Advanced Medium Range Air-to-Air Missile
- ▶ Joint Direct Attack Munition
- ▶ Small Diameter Bomb
- ▶ Unmanned Aerial Systems.

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*White Sands Missile Range (WSMR) in New Mexico tests a wide variety of weapon systems such as this Line-of-Sight Anti-Tank System. (WSMR photo)*



*The Joint Direct Attack Munition (JDAM) is one of the weapon systems tested at WSMR that has been used in support of the Warfighter. (WSMR photo)*

# Yuma Proving Ground and Yuma Test Center

Yuma, Arizona

*The Army's weapons and munitions desert test facility*

## Who We Are

- ▶ A multi-purpose remote proving ground that tests nearly every item in the Army's ground combat arsenal
- ▶ One of the Department of Defense's (DoD) largest land holders, with test facilities and ranges covering more than 1,300 square miles and managing 2,000 square miles of restricted airspace
- ▶ The Army's desert environment test facility with grueling test courses and extreme temperatures challenging equipment in realistic conditions
- ▶ The Joint Experimental Range Complex (JERC), a test site that resembles Iraq in climate, terrain and built-up areas
- ▶ America's most highly instrumented helicopter test facility
- ▶ The Army's primary artillery and mortar testing range
- ▶ Test sites connected by more than 600 miles of fiber-optic cable
- ▶ Headquarters for both Cold Regions and Tropic Regions Test Centers.

## What We Test

- ▶ Artillery systems
- ▶ Armored vehicles
- ▶ Automotive systems
- ▶ Helicopter armament and target acquisition systems
- ▶ Personnel and cargo parachutes
- ▶ Mines and mine removal systems
- ▶ Artillery and tank munitions
- ▶ Counter-Improvised Explosive Device (IED) technologies.

## Major Test Programs

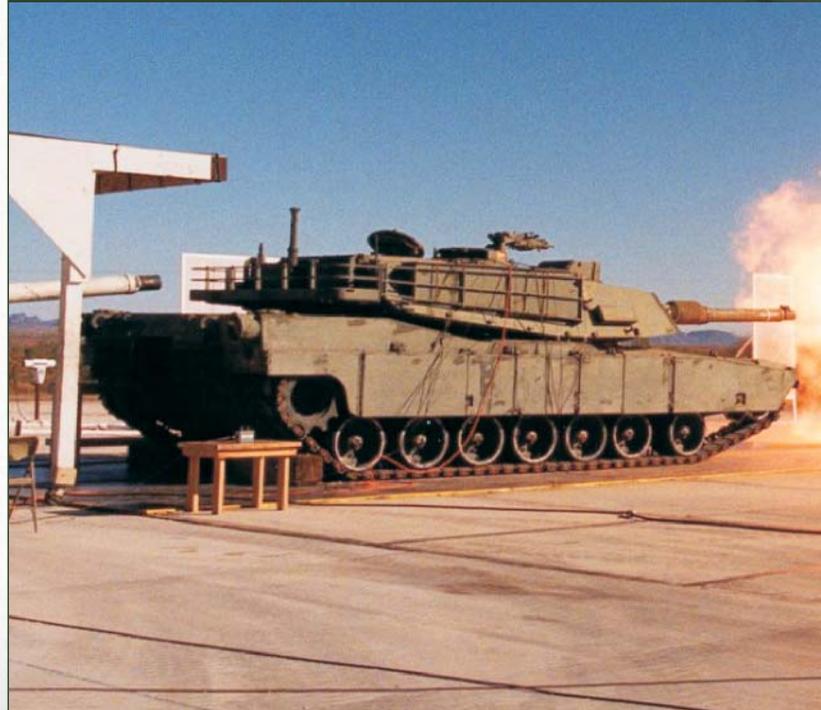
- ▶ Non-Line-of-Sight Cannon system—the first artillery platform of the Future Combat System (FCS)
- ▶ Large caliber ammunition lot acceptance testing
- ▶ Eight variants of the Stryker armored vehicle
- ▶ Unmanned Aerial Systems (UAS)
- ▶ IED counter-measures—tested in a unique urban test site that emulates typical Iraqi environment
- ▶ Precision-guided aerial resupply delivery systems
- ▶ Advanced Tactical Parachute System to replace the 1950's-era T-10 parachute
- ▶ All desert environmental testing for the Army.

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*The Bradley Fighting Vehicle is just one of the ground combat systems tested at Yuma Proving Ground (YPG) in southwestern Arizona. The proving ground is a huge tract of land with a harsh desert landscape suitable for testing military systems in a demanding environment. (YPG Public Affairs photo)*



*An Abrams tank fires down-range at the Yuma Test Center on YPG, Ariz. A diversity of vehicle test courses, ranges and other capabilities at YPG make it the Army's premier center for desert testing. (YPG photo)*

# Operational Testing

## Operational Test Command

West Fort Hood, Texas

### *Truth in Testing*

### Who We Are

- ▶ The Army's independent operational tester meeting the operational test requirements of public law (Title 10, US Code, Section 139)
- ▶ Ready Deployable Test Teams supporting Army's rapid acquisition initiatives
- ▶ Forward Operational Assessment (FOA) Teams supporting the forces in Iraq and Afghanistan
- ▶ Operational Test Command (OTC) Headquarters Command and staff; five test directorates and the Test and Evaluation Support Activity at West Fort Hood, Texas; five forward test directorates located offsite and a Test and Evaluation Coordination Office (TECO) at Fort Leonard Wood, Mo.
- ▶ A Transformation Technology Directorate (TTD) that provides technology expertise, test instrumentation and modeling and simulation tools to test teams across the OTC spectrum.

### What We Do

- ▶ Plan, conduct and report Operational Tests and Experiments for the Army acquisition decision-making process
- ▶ Test and/or assess systems in a realistic operational environment using typical Soldiers to determine whether systems are effective, suitable and survivable
- ▶ Capitalize on OTC, III Corps, and 4<sup>th</sup> Infantry Division synergy at Fort Hood
- ▶ Deploy test teams worldwide to accomplish the OTC objective of conducting Operational Testing of Soldier locations
- ▶ Deploy Forward Operational Assessment teams to collect data on weapons and systems used in an operational environment, including systems recently fielded through the Army's Rapid Fielding Initiative

- ▶ Plan high priority Operational Testing on the Army's Future Combat Systems (FCS) across all OTC test directorates.

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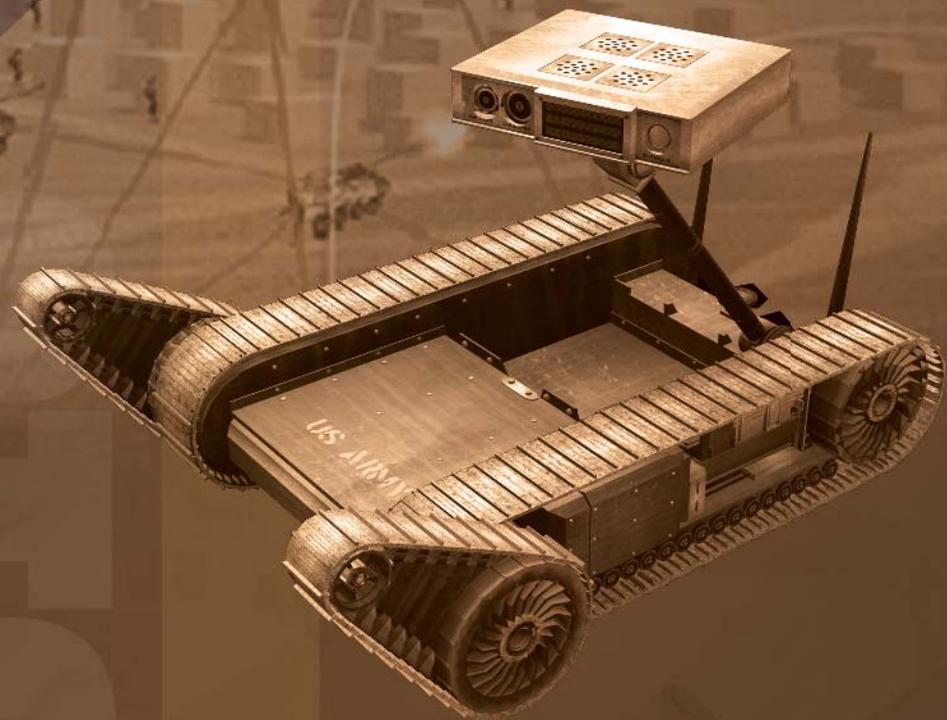
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*The Multi-function Agile Remote-Controlled robot (MARCbot) was tested by the Future Force Test Directorate at Fort Hood, Texas. Designed for surveillance of Improvised Explosive Devices, the MARCbot is currently being used in Iraq and Afghanistan. (U.S. Army photo)*



*Aviation Test Directorate (AVTD) tested the Modernized Target Acquisition and Designation Sight/Pilot Night Vision Sensor. The new system provides clearer vision for pilots—twice as much pixel resolution—which allows pilots to see more detail at greater distances. (AVTD photo)*



## Operational Test Command Support to the Warfighter

### *Forward Operational Assessment (FOA) Teams Assess Systems In-Theater*

Since November 2003, ATEC Forward Operational Assessment (FOA) Teams have been embedded with various units in Iraq, Afghanistan and Kuwait to collect data on critical systems being used by the Warfighters. This includes off-the-shelf and future force technology equipment. Soldiers in theater provide the FOA Teams with data and share their personal experiences in operating systems on the battlefield.

The FOA Teams rotate every six months and have a two-part mission. The first part is to collect capability and limitations data in an operational environment to provide Army leadership with the ability to review the use of systems in theater and to make decisions about the future of specific systems, including those recently fielded through the Army's Rapid Fielding Initiative. The second part is to identify shortfalls and fix issues dealing with everything from filling gaps in communication to passing information about new equipment and capabilities Soldiers are actually requesting. The FOA Teams are also helping Soldiers understand how to employ and maintain their equipment.

Some of the systems that will be assessed by the current FOA Team include:

- ▶ Command Post of the Future
- ▶ Joint Network Node (JNN)
- ▶ Stryker
- ▶ Common Remotely Operated Weapons System (CROWS)
- ▶ Auto Gun Mount (AGM)
- ▶ Interim Vehicle-Mounted Mine Detector (IVMMD)
- ▶ Talon Robot
- ▶ Common Missile Warning System/Improved Countermeasure Dispenser (CMWS)
- ▶ Buffalo Counter-IED Vehicle
- ▶ Commander's Digital Assistant (CDA)
- ▶ Lightweight Counter-Mortar Radar (LCMR)

- ▶ Counter Rocket, Artillery and Mortar (C-RAM)
- ▶ HMMWV Modifications
- ▶ Integrated Communications Security (ICOM)—Army Airborne Command and Control System (A2C2S)
- ▶ Rapid Aerostat Initial Deployment (RAID).



*An OTC Soldier with the FOA III team in Iraq dons the Cupola Protective Ensemble, a bomb suit designed for HMMWV turret gunners. (FOA III photo)*

## Airborne and Special Operations Test Directorate

Fort Bragg, North Carolina

### Who We Are

The Operational Test Command's (OTC) unique test directorate provides testing for the airborne contingency and joint special operations communities.

### What We Do

- ▶ Test joint service equipment to be employed in airborne operations including:
  - New personnel parachute systems
  - New or modified combat equipment
  - Individual weapons systems.
- ▶ Operational airdrop testing to validate rigging procedures, safety and equipment functionality including:
  - Aircraft
  - Parachutes
  - Air delivery equipment.
- ▶ Test every item to be transported, airdropped, airlifted, sling-loaded or delivered by Army or Air Force aircraft
- ▶ Record all visual action from exit to ground impact and recovery using:
  - Ground-based Video Tracking System
  - Aerial photography from fixed- or rotary-wing aircraft
  - Instrumentation placed on jumpers or test drop loads.

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*Airdrop testing for the V-22 Osprey was conducted by the Airborne and Special Operations Test Directorate (ABNSOTD) at Fort Bragg, N.C. (ABNSOTD photo)*

# Air Defense Artillery Test Directorate

Fort Bliss, Texas

## Who We Are

- ▶ The Army premier air and missile defense operational tester
- ▶ 1,465 square miles of live-fire and maneuver ranges
- ▶ Unlimited ceiling and controlled airspace.

## What We Do

- ▶ Initial Operational Tests and Evaluation
- ▶ Limited User Tests
- ▶ Customer tests
- ▶ Advanced Warfighting Experiments
- ▶ Joint testing.

## Major Programs

- ▶ Tube-launched, Optically-tracked, Wire-guided (TOW) missile
- ▶ Multiple-Launch Rocket System (MLRS)
- ▶ Patriot Advanced Capabilities (PAC III)
- ▶ Forward Area Air Defense System
- ▶ Enhanced Target Range and Classification (ETRAC) System.

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*A Limited User Test was conducted on the ETRAC System, an improved SENTINEL, at Fort Bliss, Texas. The SENTINEL contributes to the digital battlefield by automatically detecting, classifying, identifying and reporting targets (Cruise missiles, Unmanned Aerial Vehicles, rotary-wing and fixed-wing aircraft). The ETRAC program is designed to improve SENTINEL's capability to detect and classify small cross-section radar targets, such as Cruise missiles and Unmanned Aerial Vehicles. (ADATD photo)*



*A pilot prepares an Electronic Data Manager kneeboard prior to a flight to test the equipment in Afghanistan. (Photo by Sherman Hogue, OTC Test Documentation Branch)*

## Aviation Test Directorate

West Fort Hood, Texas

### Who We Are

- ▶ The Army Aviation Test Directorate, working closely with the U.S. Army Aviation Center, to plan, conduct and report on operational aviation tests and field experiments.

### What We Do

- ▶ Test aviation doctrine, training, organization and equipment systems to ensure they meet Soldiers' needs in an operational environment
- ▶ Place Soldiers and equipment under the most realistic test conditions possible that closely approximate the anticipated aviation environment
- ▶ Test new aviation concepts, materiel and systems to consider their effects on the total force
- ▶ Equip aviators and test equipment in theater without negatively impacting tactical missions
- ▶ Balance support to the Warfighter with traditional acquisition efforts.

### Major Test Programs

- ▶ Air Warrior Electronic Data Manager—in Afghanistan with the 1/211th Aviation
- ▶ UH60-M—first entirely simulated test event at the Systems Integration Laboratory at Redstone Arsenal, Ala.
- ▶ Army Battle Command System 6.4 (Aviation)—Initial Operational Test.

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## Close Combat Test Directorate

West Fort Hood, Texas

### Who We Are

- ▶ The test directorate for operational testing of armor and infantry systems
- ▶ The lead test directorate for operational testing of the weapons and systems of the Army's Transformation force
- ▶ The lead test directorate for operational testing of the Stryker.

### What We Do

- ▶ Independent operational testing for weapons, scopes, lasers, armored vehicles and future combat rifles
- ▶ Conduct joint testing on the Light Armored Vehicle (LAV) III in Canada with the Canadian Forces.

### Major Projects

- ▶ Objective Individual Combat Weapon
- ▶ Cupola Protective Ensemble (CPE)
- ▶ Precision Guided Mortar Munition (PGMM)
- ▶ Joint Combat Handgun (JCH)
- ▶ Stryker Mobile Gun System (MGS)
- ▶ Area Suppression Lethality Module (ASLM) XM30
- ▶ Lightweight Handheld Mortar Ballistic Computer (LHMBC) XM32
- ▶ Small Tactical Optical Rifle Mounted Micro-Laser Range (STORM MLRF)
- ▶ Thermal Weapon Sight (TWS) II
- ▶ Dismounted Battle Command System (DBCS)
- ▶ Modular Accessory Shotgun System (MASS).

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*Operational Assessment of the CPE, one of the systems under the Army's Rapid Equipment Fielding initiative. The system was also assessed by OTC's Forward Operational Assessment Team while in Iraq and Afghanistan. (CCTD photo)*

# Command, Control, Communications, and Computers Test Directorate

West Fort Hood, Texas

## Who We Are

- ▶ Communications-Electronics Test Division
- ▶ Computer Systems Test Division
- ▶ Information Technology/Information Assurance Cell
- ▶ Lead directorate for the Army Battle Command Systems (ABCS) 6.4 Initial Operational Test conducted with the 4<sup>th</sup> Infantry Division, Spring 2005.

## What We Do

- ▶ Test systems that will process and transmit voice, data, messaging and video-information through networks at the tactical, operational, strategic and sustaining base levels
- ▶ Assure that information storage and transmission are secure, available and protected from hostile or accidental destruction or release
- ▶ Conduct Forward Operational Assessment (FOA) of ABCS.

## Major Projects

- ▶ ABCS 6.4 Initial Operational Test
- ▶ ABCS 6.4 Forward Operational Assessment
- ▶ Joint Network Management System (JNMS)
- ▶ Force XXI Brigade and Below Command and Control System (FBCB2)
- ▶ Warfighter Information Network-Tactical (WIN-T)
- ▶ Joint Tactical Radio System (JTRS)
- ▶ Joint Service Aircrew Integrated Helmet Display and Sighting System.

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*The Initial Operational Test for the ABCS 6.4 was conducted at Fort Hood, Texas, with the 4<sup>th</sup> Infantry Division prior to their deployment to Iraq. The 4<sup>th</sup> ID is the first unit to field this system, which is designed to enable information dominance on the battlefield. (U.S. Army photo)*

# Engineer and Combat Support Test Directorate

West Fort Hood, Texas

## Who We Are

- ▶ The most versatile OTC directorate conducting operational tests in the areas of Combat Engineer, Chemical, Transportation, Military Police, Quartermaster, Ordnance, and Medical Service
- ▶ The Maneuver Support Division working with the Maneuver Support Center, Fort Leonard Wood, Mo.
- ▶ The Combined Arms Support Division working with the Combined Arms Support Command, Fort Lee, Va.

## What We Do

- ▶ Design Operational Tests for Army and other Armed Forces customers and agencies
- ▶ Conduct Operational Testing for a broad spectrum of Army and joint service materiel, systems and concepts.

## Major Projects

- ▶ Joint service
  - Chemical Agent Detector
  - Light Nuclear Biological Chemical Reconnaissance System
  - Theater Support Vessel transport ships
  - Common Remotely Operated Weapons Station (CROWS)
  - Joint Transportable Decontamination System-Small Scale
  - Joint Biological Standoff Detection System (JBSDS)
  - Joint Service General Purpose Mask
  - Joint Chemical Agent Detector (JCAD)
  - Joint Service Light Nuclear Biological System.
- ▶ Combat Engineers
  - High-Mobility Engineer Excavator
  - Standoff Mine Detecting System
  - Dry Support Bridge
  - Improved Ribbon Bridge.

- ▶ Army Logisticians
  - Tactical Fire Fighting Truck
  - Digital Topographic Support System
  - Tactical Quiet Generators
  - Fifth Wheel Towing Device
  - Water purification systems.
- ▶ Other
  - Stryker Nuclear Biological Chemical Reconnaissance Vehicle
  - SPIDER Networked Munitions System
  - Family of Medium Tactical Vehicles
  - IED Hunter-Killer System.

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*The Hunter-Killer system, a vehicle-mounted second-generation laser system designed to remotely neutralize land mines and unexploded ordnance, was tested at Yuma Proving Ground, Ariz. (ECSTD photo)*

## Fire Support Test Directorate

Fort Sill, Oklahoma

### Who We Are

- ▶ The Army test directorate designing and conducting operational Fire Support tests and experiments since 1902
- ▶ OTC's Forward Operational Assessment (FOA) Team consisting of a headquarters element and six data collection teams.

### What We Do

- ▶ Establish OTC's initial FOA capability in Iraq and Afghanistan
- ▶ Continue support of FOA Teams as a first priority
- ▶ Test Field Artillery weapon systems.

### Major Projects

- ▶ Initial Operational Tests (IOT):
  - High Mobility Artillery Rocket System (HIMARS)
  - Guided Multiple Launch Rocket System (GMLRS)
  - Meteorological Measuring Set (MMS)-Profiler.
- ▶ Advanced Field Artillery Tactical Data System
- ▶ Support Army Battle Command System (ABCS) 6.4 IOT
- ▶ XM982 155-mm Extended Range (Excalibur) Projectile
- ▶ Limited user test of the Pocket-Sized Forward Entry Device
- ▶ Advanced Field Artillery Tactical Data System (AFATDS).

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*High Mobility Artillery Rocket System (HIMARS) firing the GMLRS munition at White Sands Missile Range. (FSTD photo)*

## Future Force Test Directorate

West Fort Hood, Texas

### Who We Are

- ▶ The OTC Test Directorate centralizing efforts of Force XXI initiatives and the proliferation of advanced warfighting experiments
- ▶ Lead directorate for OTC support to Army Transformation experiments
- ▶ Lead directorate for Operational Testing of Future Combat Systems (FCS).

### What We Do

- ▶ Support Army Transformation by focusing on FCS
- ▶ Develop testing parameters that meet the requirements of FCS complexity and reliance on a network-centric environment
- ▶ Provide technical and data collection support to Task Force Modularity
- ▶ Develop procedures for operational tests involving FCS Brigade Combat Teams
- ▶ Support the Rapid Fielding Initiative (RFI) Program
- ▶ Assist other OTC test directorates in absorbing technological trends.

### Major Projects

- ▶ Multi-function Agile Remote-Controlled robot (MARCbot)
- ▶ Packbot
- ▶ Toughbot
- ▶ Bombot
- ▶ Rapidly Emplaced Bridge System (REBS).

### Contact Us

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*A test officer prepares to throw the Toughbot robot into a window of a three-story building at one of Fort Hood's training areas. The Toughbot was one of the robots that was operationally assessed as part of the Army's RFI program. The robots are currently used for surveillance and reconnaissance of Improvised Explosive Devices in the Iraq and Afghanistan theaters. (Photo by Sherman Hogue, OTC Test Documentation Branch)*

## Ground-Based Midcourse Defense Test Directorate

Huntsville, Alabama

### Who We Are

- ▶ The Operational Testing arm of the Ground-Based Midcourse Defense (GMD) Combined Test Force (CTF)
- ▶ The lead service member of the GMD Operational Test Agency
- ▶ Partner with the GMD Joint Program Office and The Boeing Company in the CTF—the single integrated team for GMD Element-level testing.

### What We Do

- ▶ Execute combined Developmental and Operational Testing in accordance with the GMD spiral development acquisition strategy
- ▶ Element tests include:
  - Integrated Ground
  - Integrated Flight
  - Pre-Mission
  - Post-Flight Reconstruction
  - Risk Reduction Flights
  - Radar Characterization Flights
  - Distributed Ground.

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*The first ground-based interceptor is lowered into its silo at the missile defense complex at Fort Greely, Alaska. The interceptor is designed to destroy incoming intercontinental ballistic missiles before they reach U.S. airspace. (Space and Missile Defense Command photo)*

# Intelligence and Electronic Warfare Test Directorate

Fort Huachuca, Arizona

## Who We Are

- ▶ The Army Operational Test Directorate that tests Intelligence, Surveillance, Reconnaissance (ISR)—Information Assurance (IA) and Electronic Warfare (EW) Systems
- ▶ The Intelligence Systems Integration Lab (ISIL)—a facility that supports and conducts joint Command, Control, Communication and Computer (C4) ISR tests, training, experiments and other distributed activities in a secure, collaborative environment
- ▶ A test division that is responsible for testing signals and imagery intelligence sensors, ground and airborne platforms, EW systems and processing systems
- ▶ An Electromagnetic Environmental Effects (E3) and IA threat and instrumentation capability.

## What We Do

- ▶ Provide robust synthetic operational environments with realistic battlefield conditions to test the future ISR, IA and EW systems
- ▶ Conduct operational assessments at worldwide locations to support Rapid Acquisition Initiatives and the Warfighter's urgent needs
- ▶ Develop Intelligence modeling and simulation tools
- ▶ Provide fully instrumented threat systems, dynamic scenarios and automated data extraction tools to measure systems under test
- ▶ Test the effectiveness, performance, suitability and survivability of systems
- ▶ Test in live, virtual and constructive environments
- ▶ Provide test support to:
  - Intelligence and Security Command
  - Special Operations Command

- Other Armed Forces branches
- National Security Agency
- Other Government agencies.

## Contact Us

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*An operational test of a Tactical Unmanned Aerial System conducted at Fort Huachuca, Ariz. (IEWTD photo)*

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