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EO & FLIR Sighting Support for OPFOR

Background

The Night Vision and Electronic Sensors Directorate (NVESD) was tasked by Tank and Automotive Command (TACOM) and Program Management - Ground Combat Vehicle (PM GCV) to develop a Thermal Sight System that could be fielded by the Opposing Force (OPFOR) vehicles at the Army's Combat Training Centers (CTCs) to represent near peer technology. By using 2nd Generation thermal "B Kits" removed during equipment upgrades from the M-1 Abrams tank, NVESD was able to develop a concept design for day/night operations and simulated weapons engagements in most weather environments.

The OPFOR Sighting Unit System design includes a 2nd Generation Thermal Receiving Unit (TRU) and a color day camera with a similar Field of View (FoV). The system is mounted externally to the current OPFOR Surrogate Vehicle (OSV) and interfaced with the Mounted Family of Computer System (MFoCS) Tablet Display allowing for tactical and gunnery displays for the vehicle's commander and gunner. Using Multiple Integrated Laser Engagement System (MILES) information from Program Executive Office for Simulation, Training and Instrumentation (PEO STRI), it has been integrated for full use in force-on-force exercises.

Installation

On 20 May 2019, Government and Defense Contractor members of the NVESD GCSD team traveled to Ft Irwin, CA to oversee the installation of the Thermal Sighting Unit (TSU) on two OPFOR Main Battle Tanks (MBT). TACOM leadership oversaw the installation documentation Validation/Verification (VAL/VER), while the system was installed by technicians from the Anniston Army Depot maintenance facility.

The 11th Armored Cavalry Regiment (ACR) (OPFOR training force) provided two OPFOR MBTs for the installation, and two vehicle crews for operator training; led by CW3 Ethan Kearney, Regimental Maintenance Officer. Installation and validation was completed on 23 May 2019, and the two MBTs were returned to the unit to be used for the next rotational unit force-on-force battle.

Future Plans

The systems will be fielded to the Combat Training Centers for the Army National Training Center at Ft Irwin CA, Joint Readiness Training Center at Ft Polk LA, and The Joint Multi-national Readiness Center at Hohenfels Training Area in Germany through 2021.

OPFOR System

Overview	The OPFOR System provides enhanced day EO and night 2nd Gen FLIR operation capabilities for the Opposing Forces at the Army Combat Training Centers The OPFOR System consists of a Sighting Unit, Barrel Mount Assembly, Commander and Gunner Displays, Turret Electronics Assembly, and new Turret Caps with Periscopes
Sighting Unit	The Sighting Unit contains 2nd Generation Thermal Receiving Unit (reutilized) and a Day Camera co-boresighted The Sighting Unit also provides mounting for the MILES Laser and a picattiny rail for mounting future subsystems such as a STORM LRF The Sighting Unit is mounted to a Barrel Mount Assembly
Barrel Mount Assembly	Adapts the Sighting Unit to either the OPFOR Surrogate Vehicle or Main Battle Tanks OPFOR Training Vehicle Provides Shock and Vibration Isolation to protect the Sighting Unit from the harsh environments seen during combat training exercises
Turret Electronics Assembly	Contains: Vehicle Power Conditioning Unit, Ethernet Switch and 1553 Video Converter Provides electrical interfaces between the vehicle, Sighting Unit, and Displays (Commander and Gunner)
Commander and Gunner's MFoCS Tablets	The multi-function tablet displays provide: • Vehicle Crewmember roles as Commander or Gunner • Visualization of the images provided by the Sighting Unit • Interoperability to switch between sensors (Thermal or Visible) • Interface to make image quality adjustments, boresight, and menu changes Mounted Family of Computer Systems Tablets are mounted to display a normal line of sight for both the Commander and Gunner
Turret Cap	A new Turret Cap has been designed to provide a forward looking periscope position that does not interfere with the Commander or Gunner's Displays Turret Cap provides forward visibility when not using the Thermal or Day Camera Displays

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