

## Future Combat Systems: Unattended Ground Sensors (FCS: UGS)

### Executive Summary

- In 2008, the Army redefined its approach to the Spin Out of Future Combat Systems (FCS) systems to current force Brigade Combat Teams (BCTs). FCS Spin Out systems will now be fielded to Infantry Brigade Combat Teams (IBCTs) first as opposed to the Heavy Brigade Combat Teams (HBCTs), as previously planned. As a result of this program refocus, the IBCT Spin Out Limited User Test (LUT) scheduled for the summer of 2008 was rescheduled for summer 2009.
- The FCS program executed several test events for the Unattended Ground Sensor (UGS) program, to include a Technical Field Test (TFT), and a developmental test event conducted under tactical conditions at Fort Bliss, Texas. Included in this testing was a Preliminary LUT (P-LUT) in July 2008 in conjunction with the Army Evaluation Task Force at Fort Bliss in July 2008.
- New Tactics, Techniques, and Procedures (TTPs) must be developed to accommodate the transition of UGS deployments with IBCTs instead of HBCTs.

### System

- FCS has two unattended ground sensors, Tactical-Unattended Ground Sensor (T-UGS) and Urban-Unattended Ground Sensor (U-UGS) capable of target detection, location, and classification. UGS consist of multiple types of sensors to include acoustic, seismic, magnetic, electro-optical/infrared sensors, and radiological/nuclear sensors.
- Tactical-UGS systems are self-organizing networks of remotely deployed, long-range sensors designed to enhance perimeter defenses of forward operating bases and other facilities. It includes a gateway for transmission of

### Activity

- In 2008, the Army redefined its approach to the Spin Out of FCS systems, which includes both the T-UGS and U-UGS, to current force BCTs. FCS Spin Out systems will now be fielded to IBCTs first as opposed to the HBCTs, as previously planned. As a result of this program refocus, the IBCT Spin Out LUT scheduled for the summer of 2008 was rescheduled for summer 2009.
- The FCS program executed several test events for UGS, to include a TFT, and a developmental test event conducted under tactical conditions at Fort Bliss, Texas.
- The program executed a P-LUT in July 2008 in conjunction with the Army Evaluation Task Force at Fort Bliss in



**Tactical-Unattended  
Ground Sensor (T-UGS)**

**Urban-Unattended  
Ground Sensor (U-UGS)**

information to the FCS network and fusion of data from its various sensors.

- Tactical-UGS sensors include the intelligence, surveillance, and reconnaissance sensors, radiological and nuclear sensors, and electro-optical/infrared sensors. T-UGS are hand-emplaced and hand-retrieved at the end of missions.
- Urban-UGS are small, leave-behind imaging and intrusion detection sensors, similar to commercial burglar alarms that are emplaced in buildings, caves, or tunnels. Information is transmitted to the FCS network via a hand-held gateway.

### Mission

Units will employ UGS to provide remote perimeter defense, surveillance, target acquisition, and situational awareness, and high-yield explosive radiological and nuclear early warning.

### Prime Contractor

- Textron

July 2008. The P-LUT provided an early look at the redefined IBCT Spin Out.

### Assessment

- The Army's decision to shift the Spin Out focus to the IBCTs will provide an opportunity to further mature UGS prior to the LUT in the summer of 2009. The TFT conducted in 2008 identified a number of indicators of the maturing technological advancement and challenges of UGS specifically in the areas of the detection distances of targets as well as communication range between systems.

# ARMY PROGRAMS

- During technical testing, U-UGS demonstrated detection distances of 15 meters which met the LUT entrance criteria. The systems will have to display this capability consistently in an operational environment.
- Performance of the T-UGS did not meet the long distance communication range requirement during the HBCT development test. The Army's updated requirement is for the T-UGS to communicate at a minimum of 3.0 km range. During the test, it was able to maintain communication out to 800 meters. The program is currently exploring several initiatives to meet the minimum range threshold to potentially include a range extension relay.
- Work continues to improve the integration of objects identified by UGS into the Force XXI Battlefield Command Brigade and Below (FBCB2) network. In automatic mode, UGS frequently overwhelmed FBCB2 subsequently slowing down the internal

processing. Manual inputting of target data alleviated the stress on the network.

## Recommendations

- Status of Previous Recommendations. This is the first annual report for this program.
- FY08 Recommendations. The Army should:
  1. Retain the existing planned series of operational test events culminating in an IOT&E with a fully equipped IBCT operating in a sophisticated and robust enemy threat environment.
  2. Refine the TTP's developed to accommodate the transition of UGS deployments with IBCT instead of HBCTs.