

# PROPHET



## Army Programs: PROPHET Ground ACAT III; DTUAV-SIGINT ACAT III

Total Number of Systems	
PROPHET Ground (PG):	83
DTUAV-SIGINT:	14
Total PG Program Cost (TY\$):	\$68.3M
Average PG Unit Cost (TY\$):	\$.565M
Total DTUAV-SIGINT Program Cost (TY\$):	TBD
Average DTUAV-SIGINT Unit Cost (TY\$):	TBD
Full-rate production	
PROPHET Ground:	2QFY01
DTUAV SIGINT:	4QFY05

## Prime Contractor

PROPHET Ground: Delphin Systems, Inc. (first 13) DTUAV-SIGINT: pending competition

## SYSTEM DESCRIPTION & CONTRIBUTION TO JOINT VISION 2020

The PROPHET is a suite of division-level Signal Intelligence/Electronic Warfare (SIGINT/EW) sensor and jamming sub-systems that operate at or below the collateral SECRET security level. PROPHET consists of two programs: (1) PROPHET Ground, mounted on a High Mobility Multipurpose Wheeled Vehicle (HMMWV); and (2) Division Tactical Unmanned Aerial Vehicle (DTUAV-SIGINT). The DTUAV-SIGINT program consists of two elements: (1) the aerial SIGINT and EW payloads for the Tactical Unmanned Aerial Vehicle (TUAV); and (2) a ground-based workstation to remotely control the mission payload(s) and display the data.

PROPHET's primary mission will be to electronically map radio frequency emitters on the battlefield operating between 20 MHz (High Frequency)) and 2,000 MHz (Super High Frequency).

Electronic mapping is defined as detecting, identifying, locating, and tracking all radio frequency emitters operating within sensor line-of-sight and with sufficient signal strength, and graphically depicting the emitters. PROPHET will also have the capability to select specific emitters/nodes for more accurate geographic location, conduct Electronic Attack (jamming) and Navigation Warfare, and perform tactical voice exploitation. PROPHET has the capability to cross-cue other Intelligence and Electronic Warfare (IEW) and non-IEW sensors. DTUAV-SIGINT will orchestrate the overall SIGINT/EW and Measurements and Signature Intelligence (MASINT) effort within the Division. DTUAV-SIGINT will transmit and receive reports to and from the All Source Analysis System (ASAS) at the Division's and the Armored Cavalry Regiment's Analysis and Control Elements (ACE) and the Brigade's Analysis Control Teams (ACT), providing digital information in near real-time to the common operating picture. The forward deployed PROPHET Ground's major mission is to provide force protection directly to the supported maneuver commanders. The force protection is based upon PROPHET Ground's ability to provide timely opposing-force voice activity reports.

PROPHET will contribute to *Joint Vision 2020* by providing Army Division and Brigade commanders with the SIGINT/EW tools necessary to achieve decision superiority. PROPHET directly supports the operational concepts of *Joint Vision 2020* by providing situation awareness and force protection in support of *dominant maneuver*, and by providing target development and electronic attack in support of *precision engagement*.

## **BACKGROUND INFORMATION**

The concept for the PROPHET program was initiated in 1998, following unfavorable results from DT and Combined DT/OT of the Intelligence and Electronic Warfare Common Sensor (IEWCS) program. IEWCS consisted of three Army systems: (1) the Army Ground-Based Common Sensor-Light (GBCS-L); (2) the Army Ground-Based Common Sensor-Heavy (GBCS-H); and (3) the Army Advanced Quick Fix (AQF). The collective operation of GBCS-L, GBCS-H, and AQF was designed to support Army divisions with signal detection, identification, location, and jamming (a growth capability). It was also supposed to provide nominal geo-location accuracy using time-difference of arrival techniques when operating with a baseline of three or more systems and a degree of accuracy suitable for targeting when using differential Doppler techniques involving a combination of AQF and ground-based platforms.

The emerging test results from GBCS-L combined DT/OT found the system to be neither effective nor suitable. Geo-location accuracy and reliability were not achieved during earlier DT, and fell short of users requirements. The system could not be fully tested against threat targets in all frequency bands due to antennae calibration limitations encountered prior to the tests and software problems encountered during the tests. For the third time, the system was deemed not ready to undergo IOT&E. This caused the Army portion of IEWCS to be discontinued and led to a congressional request for an audit of IEWCS by the DoD Inspector General.

The DoD Inspector General's findings stated that the program was not managed efficiently or effectively. As a result: (1) IEWCS spent nine years in the engineering, manufacturing, and development phase; (2) the Army spent \$902 million on development and procurement; and (3) the Government accepted seven limited procurement urgent Ground-Based Common Sensor-light systems that never passed initial operational test and evaluation (and planned to accept five more systems upon production close out).

These findings forced the Army to come up with a new tactical SIGINT strategy and a restructured program—PROPHET—to implement this strategy. The Army's first step in this transition is to field PROPHET Ground as a replacement for the Army's aging tactical SIGINT legacy systems: Teammate, Trailblazer, Trafficjam, and the AN/PRD-12.

## **TEST & EVALUATION ACTIVITY**

The PROPHET Test Integrated Product Team has developed the TEMP for PROPHET Ground, which was approved in October 2000. The Division TUAV SIGINT Program (DTSP), formerly PROPHET Air, is under development by the DTSP T&E IPT. Similar problems exist in both programs for requirements definition and program development. AEC, OTC, and DTC have been active in assisting the TSM and PM in the development of key documents to essentially allow development of both Test and Evaluation strategies for PROPHET Ground and Division TUAV SIGINT.

Phase 1 Initial Operational Test (IOT) for PROPHET Ground Block 1 (PGB 1) began October 27, 2000, and was completed November 11, 2000. Phase 2 test for PGB1 consisted of an over the shoulder assessment of 313<sup>th</sup> MI Battalion employment of the PGB1 system. Results from developmental testing, the Joint Contingency Force Advanced Warfighting Experiment (JCF AWE), and the PGB 1 IOT Phase 1 and 2, will provide input to the Milestone III scheduled for March 31, 2001. PG Block 2 is attempting to go to IOT in 4QFY01. Documentation to support PG Block 2-5 has yet to be completed.

DTSP is currently trying to achieve a Milestone B decision by 2QFY01. The T&E IPT is attempting to generate the evaluation strategy based on draft documentation. EPG/WSMR, DTC is scheduled to support the PM in the product demonstrations during the November/December 2000 timeframe to help the TSM and the PM refine requirements and reduce RDT&E costs associated with DTSP development.

## **TEST & EVALUATION ASSESSMENT**

Based on past test experience with the Intelligence and Electronic Warfare Common Sensor program, PROPHET operational testing is taking place in a more dynamic and realistic environment than the static developmental testing range configuration used in prior Army SIGINT OTs. DOT&E has been working with the Army testers to ensure that phases of operational testing to support each milestone will be conducted in an operational environment as part of field training exercises. This is evident in the Phase 2 PGB 1 IOT conducted at Ft. Bragg, NC, during an airborne brigade FTX and the use of AWE information to augment the evaluation.

Test planning has been hampered by the lack of approved Operational Requirements Documents (ORD). The Army Training and Doctrine Command (TRADOC) finally approved the ORD for PROPHET Ground in July 2000. The PROPHET Product Manager completed the PROPHET Ground TEMP in time to support the start of IOT, and the Army Evaluation Center completed the System Evaluation Plan within two months of receiving the approved ORD and COIC. Although the start of PROPHET Ground Block IOT was in jeopardy, the T&E IPT worked to ensure that all documentation necessary to proceed to IOT was completed on time. DOT&E involvement throughout this process was crucial in the staffing and approval of key T&E documents to support the IOT start date.

## **CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED**

The subject matter expertise within DOT&E can contribute to the development of Concepts of Operations (CONOPS) for the employment of new systems. In the case of PROPHET Ground, the materiel development proceeded at a faster pace than the development of CONOPS. DOT&E assisted the TRADOC System Manager-PROPHET in coming up with a viable CONOPS for IOT&E and potential fielding of the system.