

Force XXI Battle Command, Brigade and Below/Blue Force Tracker (FBCB2/BFT) Block I

SUMMARY

- The Army cancelled the Initial Operation Test and Evaluation (IOT&E) in 2003 because the test unit deployed in support of Operation Iraqi Freedom and Operation Enduring Freedom.
- DOT&E approved the Army's plan to use the following events to constitute an IOT&E in support of a full-rate production review:
 - Limited User Test-2A (2001)
 - Operation Iraqi Freedom/Operation Enduring Freedom (January 2004)
 - Developmental test/operational test (February 2004)
- The Force XXI Battle Command, Brigade and Below (FBCB2) system is operationally effective and suitable, but demonstrated reliability well short of the user defined requirements.
- The FBCB2/Blue Force Tracker Test and Evaluation Master Plan, approved in August 2004, is adequate to evaluate shortcomings identified in the IOT&E and for evaluation of FBCB2/BFT Block II requirements.



FBCB2's capabilities enhanced battlefield visualization, situational awareness, navigation, and battle command.

SYSTEM DESCRIPTION AND MISSION

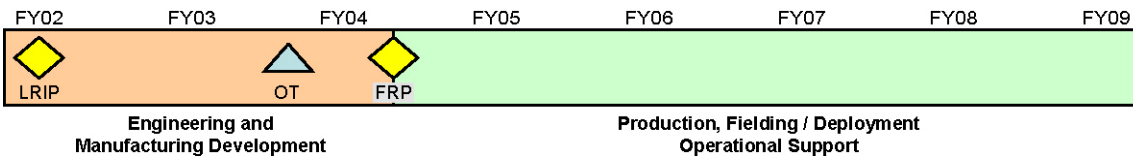
The FBCB2 system is designed to provide timely, accurate, and on-the-move command and control information to Army and Marine Corps forces at brigade levels down to individual platforms. FBCB2/BFT displays, on a computer screen, the positions of the Army or Marine Corps vehicles that have similar equipment and allows units to exchange orders, graphics, reports, and free-text messages. FBCB2/BFT uses satellite communications to transmit the information between units and Global Positioning System receivers to determine the position of the unit. An earlier configuration of FBCB2/BFT uses non-satellite terrestrial radios Single Channel Ground and Airborne and Enhanced Position Location Radio Systems (SINCGARS and EPLRS) to communicate.

FBCB2/BFT program consists of an integrated suit of hardware, system and application software, and support system. FBCB2/BFT systems are installed on various weapons platforms, combat vehicle, and at battalion and brigade tactical operational centers. There are three FBCB2/BFT configurations. The first configuration is an appliqué computer system, consisting of a central processing unit, touch screen display, and keyboard. This system uses SINCGARS and EPLRS radio line-of-sight means of communications. This system is cleared to transmit classified data up to the secret level. The second configuration is an embedded system and it uses the weapons platforms existing processor and EPLRS and SINCGARS radios. It can also transmit up to secret.

The third configuration is a satellite system referred to as Blue Force Tracker. It uses satellite communication and is a non-secure system.

ARMY PROGRAMS

TEST AND EVALUATION ACTIVITY



The IOT&E was scheduled for 2003, but the test unit was deployed to Operation Iraqi Freedom and Operation Enduring Freedom, and the IOT&E was cancelled. The Army and DOT&E sent a team to Iraq and Afghanistan to assess operational performance and determine system functionality in an operational wartime environment. The team conducted surveys and interviews and reviewed action reports and gather personal observations with users in units operating FBCB2/BFT system. Information revealed that situational awareness was an invaluable tool used by the commanders during the war for battle synchronization and battlefield visualization. Soldiers praised the capability to maintain communications with other vehicles over distances too great for terrestrial communications systems. BFT messaging capability reduced voice traffic and allowed commanders to focus on command and control and spend less time requesting position reports.

The Army conducted a developmental test/operational test (DT/OT) during February 19-27, 2004. The FBCB2/BFT DT/OT was a distributed test conducted at the United States Army Electronic Proving Ground, Fort Huachuca, Arizona; the Central Technical Support Facility, Fort Hood, Texas; and Fort Bragg, North Carolina. The DT/OT was largely a technical test with the primary objective of the test to characterize the ability of the system to exchange situational awareness and entity data between satellite and terrestrial networks. The test included 30 platforms, 25 BFT systems and 5 terrestrial FBCB2s installed in High Mobility Multipurpose Wheeled Vehicles, commercial utility cargo vehicles, and cargo trailers. Soldiers participated in the test and operated each system.

TEST AND EVALUATION ASSESSMENT

FBCB2 is operationally effective and operationally suitable. Reliability fell well short of user requirements. Commanders, leaders, and soldier feedback from Operation Iraqi Freedom and Operation Enduring Freedom played a major role in determining effectiveness and suitability of the FBCB2 system. FBCB2 provided a limited capability for which it was designed. FBCB2's capabilities enhanced battlefield visualization, situational awareness, navigation, and battle command. The mean time between essential function failure requirement is 500 hours, and testing revealed 346 hours without peripheral devices (i.e. radios/interface devices). The system's mean time between essential function failures averages between 96-113 hours with government furnished equipment included. Although the system did not demonstrate its mean time between essential function failure requirements, the shortfalls were often mitigated due to redundant systems. Without the government furnished equipment, FBCB2 would not have operational capability.

Many of these shortcomings were attributable to the expedited fielding to support Operation Iraqi Freedom and Operation Enduring Freedom. The FBCB2 program must address these shortcomings and verify their fixes in future operational test and evaluation events.