

Bradley Fighting Vehicle System Upgrade A-3

The M2A3 and M3A3 Bradley Fighting Vehicle Systems (BFVS) are improved versions of the M2A2 and M3A2 BFVS. Enhancements on the BFVS-A3 improve lethality, mobility, survivability, and sustainability. Additionally, these enhancements provide increased situational awareness and digital command and control capabilities.

The BFVS is designed to provide mobile protected transport of an infantry squad to critical points on the battlefield and to perform cavalry scout missions. The BFVS also provides overwatching fires in support of dismounted infantry and suppresses or defeats enemy tanks and other enemy fighting vehicles. BFVS-A3 enhancements include:

- Force XXI Battle Command, Brigade and Below (FBCB2) Integrated Combat Command and Control. This system shares battle command information and situational awareness with all components of the combined arms team.
- The improved Bradley acquisition system and commander's independent viewer, both second-generation forward-looking infrared (FLIR). This system enhances target acquisition and target engagement.
- A position navigation system with a Global Positioning System receiver and a backup inertial navigation system. This enhances location awareness.
- An integrated maintenance diagnostics and built-in test equipment package.

In March 1994, the Army began the engineering, manufacturing, and developing phases. Previous operational testing included a Limited User Test (LUT) 1 in December 1997; an Operational Experiment in September 1998; a Detection, Acquisition, Recognition, Identification (DARI) Test in October 1998, and a LUT 2 in August- September 1999.

M2A3 vulnerability was based on the full-up, system-level live fire test (FUSL LFT); early M2A3 ballistic shock testing; electronic fault insertion events (controlled damage tests); and laser energy weapon testing. The culminating LFT&E event was the FUSL LFT, which was conducted during the period of December 1998 through September 1999.

TEST & EVALUATION ACTIVITY

The BFVS-A3 IOT&E was conducted in October-November 2000 in accordance with a DOT&E approved plan. DOT&E monitored test events and conducted an independent assessment of the test results and provided an operational and LFT&E Report to the Secretary of Defense and Congress in April 2001. Planning for possible post-Milestone III vulnerability testing is ongoing. Such testing could include exploring fixes to unexpected vulnerabilities revealed in the LFT&E or FBCB2 shock component vulnerabilities.

In 2002 and 2003, the Army conducted several technical test events and demonstrations to evaluate fixes for FBCB2.

TEST & EVALUATION ASSESSMENT

DOT&E assessed the M2A3 to be operationally effective, suitable, and survivable based on the results of the IOT&E, DARI, and the LUT 2. Overall, the M2A3 showed an improved level of operational effectiveness in comparison to the M2A2, which was fielded during Operation Desert Storm. This improvement is attributed to the M2A3's enhanced capability to detect, identify, and hit targets. The M2A3 also has improved night fighting capabilities through its second-generation FLIR.



Enhancements on the Bradley Fighting Vehicle System-A3 improve lethality, mobility, survivability, and sustainability. Additionally, these enhancements provide increased situational awareness and digital command and control capabilities.

ARMY PROGRAMS

The FBCB2 digital command and control, as integrated into the M2A3, demonstrated during the IOT&E that it was neither effective nor suitable and it did not contribute to the operational effectiveness of the M2A3/M1A2 System Enhancement Package-equipped force. Despite this, the M2A3 was able to demonstrate an overall improved level of operational effectiveness in comparison to the M2A2 Operation Desert Storm, predominately because of the capabilities of the M2A3's second-generation FLIR and improved fire control system.

Field Test 5, conducted September 12- 27, 2002, at the Electronic Proving Ground, Fort Huachuca, Arizona, and cold weather testing at the Cold Regions Test Center, Alaska, revealed that significant suitability problems with M2A3 FBCB2 integration still existed. Recent technical test results indicate that FBCB2 reliability significantly improved when using a new Solid State Hard Drive instead of the standard spinning FBCB2 hard drive. A 1,500-mile follow-on production test at Aberdeen Proving Ground, Maryland, and a two-week user demonstration (late November-early December 2003) are planned to confirm the effectiveness and suitability of this solution. Successful results and subsequent evaluation from these tests should close out the digital command and control issues on the BFVS-A3.