

Cartridge 5.56 mm M855A1

Executive Summary

- The Army initiated testing of the M855A1 projectile in FY08. That testing, in addition to LFT&E lethality testing, continued into FY09.
- During high temperature operational testing in FY09, the Army observed an anomaly with the trajectory of the projectile. As a result, the Army initiated an investigation to fully understand the problem and implement a resolution.
- The Army subsequently developed a modified projectile, incorporating a copper slug, and will conduct additional validation testing in FY10.

System

- The M855 A1 program evolved from an Army Research, Development, and Engineering Center, Picatinny, New Jersey, program titled “Green Ammunition.”
- The objectives of the Green Ammunition program are to reduce lead contamination on training ranges and reduce the lead hazard from the manufacturing environment while maintaining performance and trajectory match with the current M855 cartridge. While the Green Ammunition program will produce other calibers of ammunition, the 5.56 mm projectile was the first to be spun-out due to its extensive use.
- The M855A1 cartridge is intended to be compatible with the M4 and M16 family of weapons, as well as the M249 Squad Automatic Weapon. This new cartridge is intended to be a direct replacement for the currently fielded M855 cartridge.
- The M855A1 is a three-part projectile consisting of a steel penetrator, a copper slug, and a reverse drawn copper jacket.

Mission

Infantry and security forces equipped with the M855A1 will close with and engage enemy combatants following traditional tactics, techniques, and procedures.

Activity

- During high temperature operational testing in FY09, the Army observed flight stability problems with the M855A1 projectile. The Army attributed the anomaly to the material composition of the slug (material used to fill the rear portion of the projectile).
- Subsequently, the Army Program Manager for Maneuver Ammunition Systems; the Army Research Laboratory’s Weapons and Materials Research Directorate; the Army Research, Development, and Engineering Center’s Munitions Systems and Technical Directorate; and the prime manufacturer developed a material change to the projectile to address the anomaly.



Prime Contractor

- Alliant-Techsystems, Small Caliber Systems, Independence, Missouri

- The Army will conduct additional validation testing in FY10 to verify that the material change adequately addresses the trajectory anomaly and to assure the lethality of the cartridge was maintained.

Assessment

During Qualification and LFT&E lethality testing, the M855A1 demonstrated adequate performance and lethality.

Recommendations

- Status of Previous Recommendations. This is the first annual report for this program.

ARMY PROGRAMS

- FY09 Recommendation.
 1. The Army Test and Evaluation Command should convene the lethality integrated product team following completion of validation testing to assess whether the material change affected the projectile's lethality.