MRM-KE: A Lethal Solution

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• PM-MAS, Picatinny NJ
• ARDEC, Picatinny NJ
• Army Research Laboratory, Aberdeen MD
• Alan Gauzens – ATK TERM-KE/MRM Program Manager
• Barry Lindblom – ATK TERM-KE/MRM Technical Lead
• Many other contributors to this program’s success….
What is MRM-KE?

- Mid-Range Munition-Kinetic Energy (MRM-KE)
- Next generation Beyond Line Of Sight (BLOS) tank ammunition
  - Fire-and-forget from 120mm smooth bore cannon
  - 2 to 12 km Range
- Under development via ARDECs MAAST ATO
- MRM Program Transitions to SDD in GFY 08
Platforms and Targets

Potential Platform

M1A2 Abrams

Planned MRM Platform

FCS Mounted Combat System Concept

Primary Target

Secondary Targets
Basic Design

• Evolution of XM1007 Tank Extended Range Munition (TERM-KE) into MRM-KE

- High Strength Composite Case For Launch Loads
- Fold Out Fins For Stabilization
- Rocket Motor For Terminal Velocity Boost
- Long Rod For Deep Penetration Large Diameter Hole
- Guidance Electronics For Accurate Target Hit
- High Density Battery For Power
- Maneuver Mechanism For Steering
- Dual Mode Semi Active Laser MMW Sensor All Weather
- Total Projectile used in Target Defeat
Speed Kills – MRM-KE Advantage

- Accuracy from Dual Mode all-weather Millimeter Wave and Semi Active Laser sensors with maneuver mechanism
- Hard Target Lethality from terminal velocity boost & large diameter penetration hole

Autonomous un-aided BLOS Target Hit in 2004!

VIDEO
Terminal Ballistics Modeling and Test

- Terminal ballistics modeled using 3D EPIC Lagrangian computer code
  - 3D, multi-processor simulations
  - Complex target interaction
- Testing at Army Research Lab, Aberdeen MD
  - 7” diameter, experimental HARP gun tube

**Simulation Example**

**Test Round in Sabot**
Proven Performance

- Testing has shown MRM-KE effective against modern tanks protected by explosive reactive armor
- MRM-KE Impacts with > 2.5x the energy of 120mm KE bullet
- MRM-KE also effective against secondary targets

VIDEO

MRM-KE delivers bunker buster/soft target defeat
Summary

• ATK’s MRM-KE is Beyond Line Of Sight, Fire-And-Forget 120mm “tank” ammunition round

• MRM-KE is **Lethal** against main battle tanks and softer, secondary targets
  – Dual-mode, all weather Millimeter Wave and SAL sensors with accurate guidance system
  – Terminal rocket motor velocity boost ➔ Speed Kills

• Currently in ARDECs MAAST ATO S & T Phase
  – MRM SDD award planned for Summer/Fall 2007