



NDIA

**42nd Annual Armament Systems
Gun & Missile Systems Conference
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**Presented by;
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RDECOM-ARDEC**

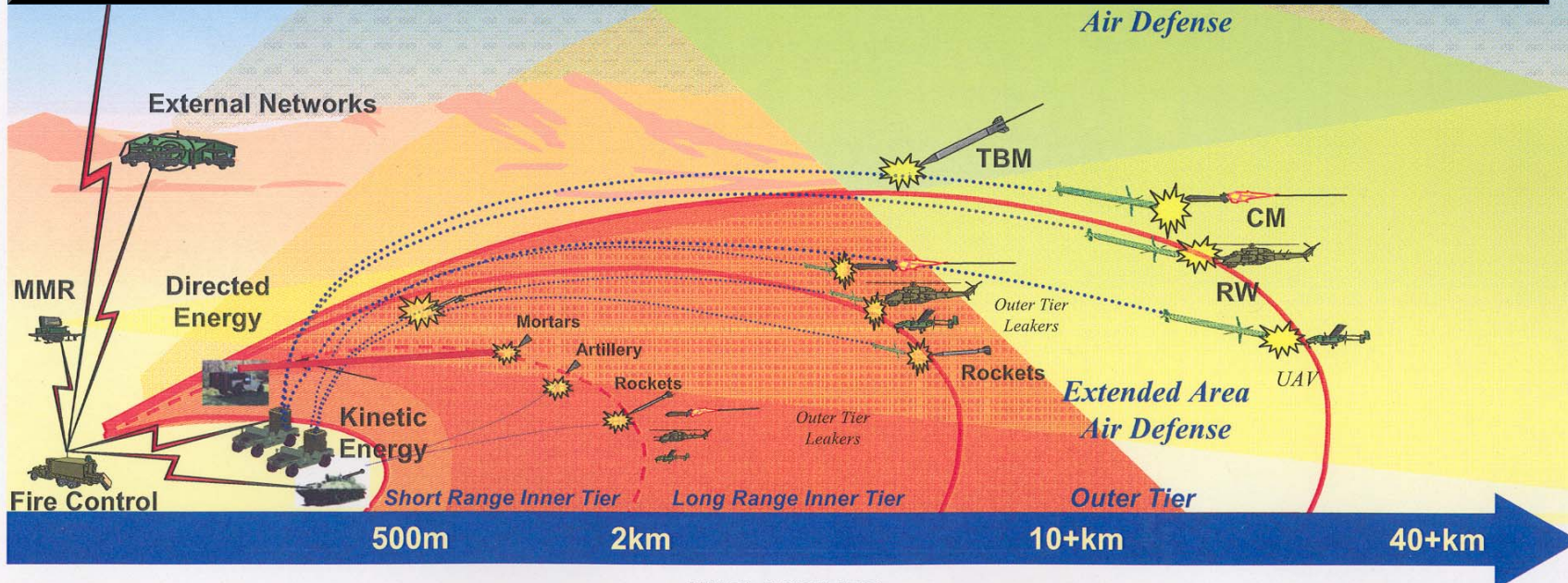




EAPS Goal and Battle Space



Develop and Demonstrate Critical Technologies for Bridging the Gap Between the Initial C-RAM Capability and the Objective EAADS Capability for Providing Mobile, 360-Degree Hemispherical Extended Area Protection from RAM Threats



Defeat RAM Aerial Threat Targets

- Small Presented Areas
- Low RCSs
- Thick, Hard Warhead Cases
- Short Times of Flight
- High Rates of Fire
- Dual Purpose Improved Conventional Munitions (DPICMs)

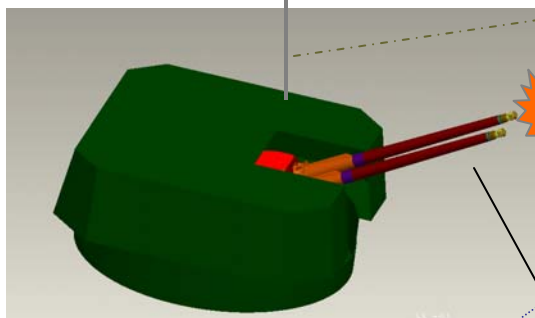
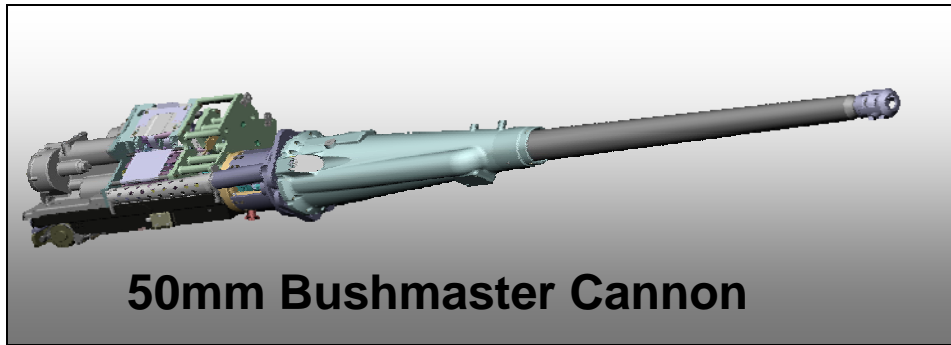


Target List

- Mortars: 60 mm – 120 mm
- Rockets: 107 mm-240 mm
- Artillery: 122 mm-152 mm



EAPS Baseline Concept



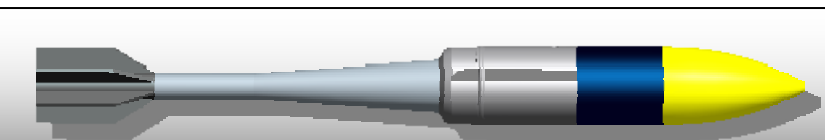
RF Data Link

Radar Track

10 Round Burst

Mid-Flight Course Correction

Forward Fragmentation Warhead Detonation



50mm Course Corrected Projectile



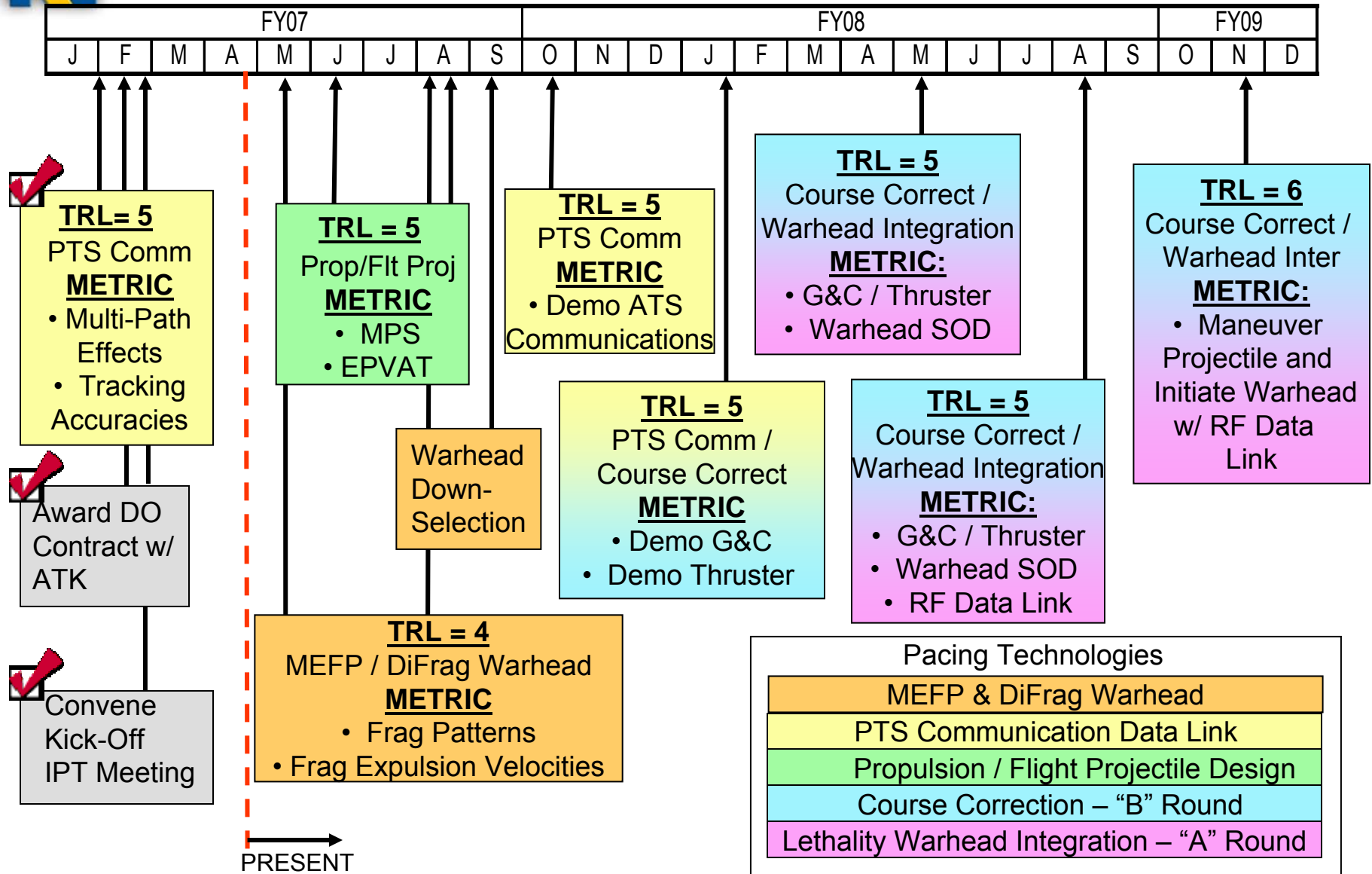
Goals and Objectives



- By the end of FY08 Demonstrate:
 - EAPS 50mm Automatic Cannon on Hardstand Mount
 - 50mm Lethality Round
 - 50mm Course Correction Round } Common Projectile Carrier Demonstrated Separately
 - ATS Radar Integration for Tracking and RF Communication
 - Component Level Tests to Demonstrate Fuzing, Warhead Lethality, Course Correction and Engagement Accuracy Against Static Targets
- Continued Systems Analysis to Validate the System Level Effectiveness
- Transition to Follow-On System Integration Development



Program Milestones

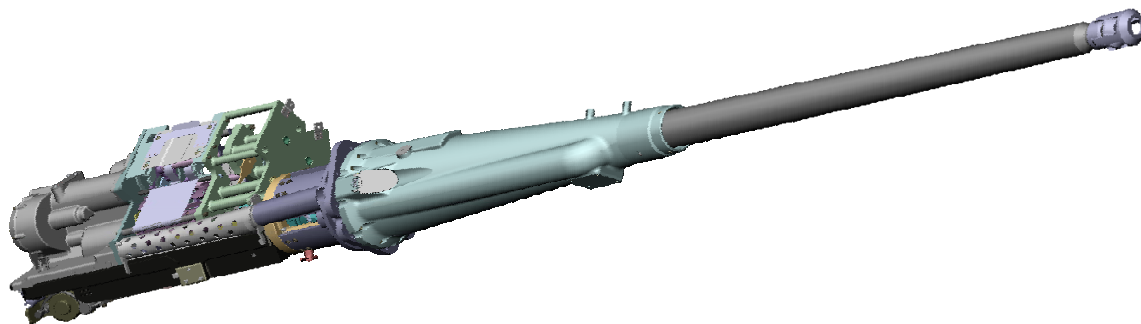
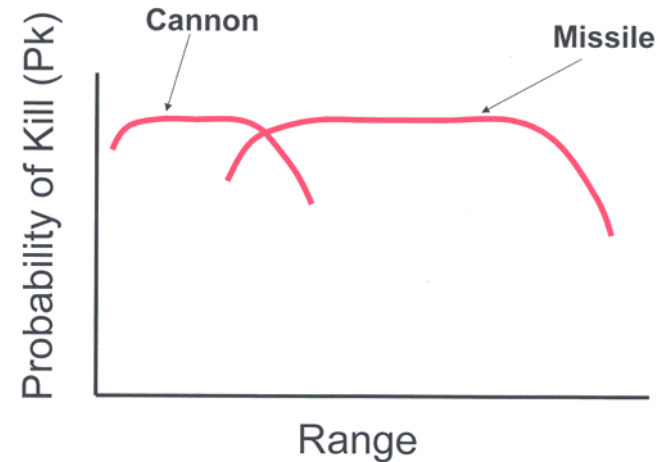




The Gun as Part of a Gun/Missile Solution



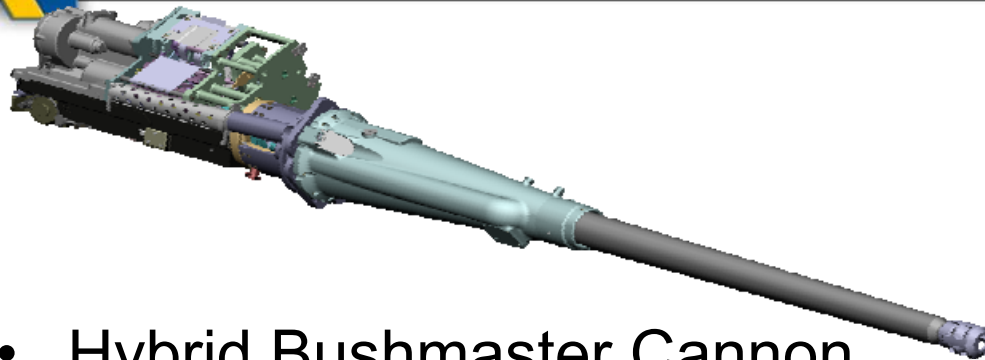
- Short Range Lethality
- Fast Reaction Time
- Low Cost per Kill
- Engagement of “Leakers”
- Advanced Ammunition Tailored To the Threat



Cannons Complement Missiles Well in Terms of Range, Reaction Time and Cost per Kill- Complementary Solution may be Best

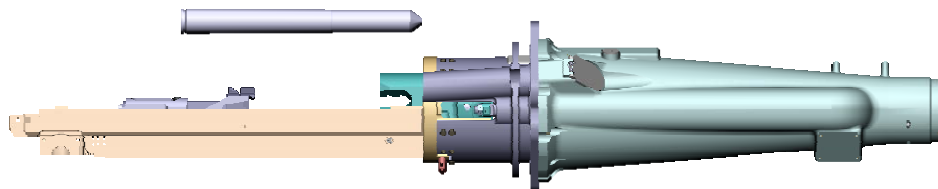


50mm Bushmaster Cannon

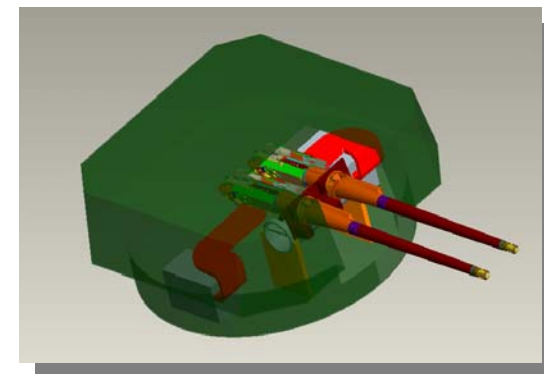


- Hybrid Bushmaster Cannon
- Accommodates EAPS 50mm Caliber Cartridge Length
- No New Development Required
- Twin Guns in Common Turret

- 50mm Bushmaster Specs**
- Caliber: 50mm
 - Cartridge Length: 538mm (21")
 - Firing Rate: SS/200 spm
 - Weight: 510 lbs
 - Recoil Force: 14,000 lb
 - Power Req'd: 3 HP
- Manufacturer: ATK MCS, Mesa**



BMIV AFT RECEIVER with BMIII BREECH & FWD RECEIVER



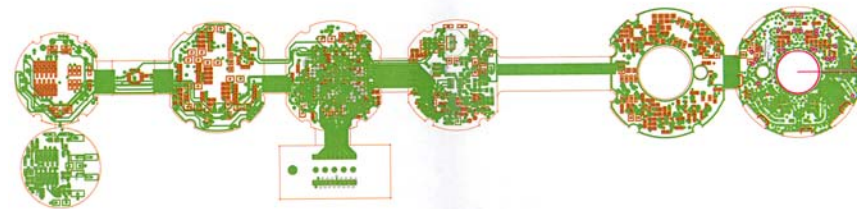
**Twin 50mm Cannons
in EAPS Turret**



ATS Radar Communication Data Link



- Truth Radar for C-RAM
- Very, Very Accurate
- Can Provide Tracking and Communication for Divert, Detonate and Telemetry
- Transceiver can Miniaturized for 50mm EAPS Projectile
- Tracks Multiple Incoming Targets and Outgoing Interceptor Munitions Simultaneously



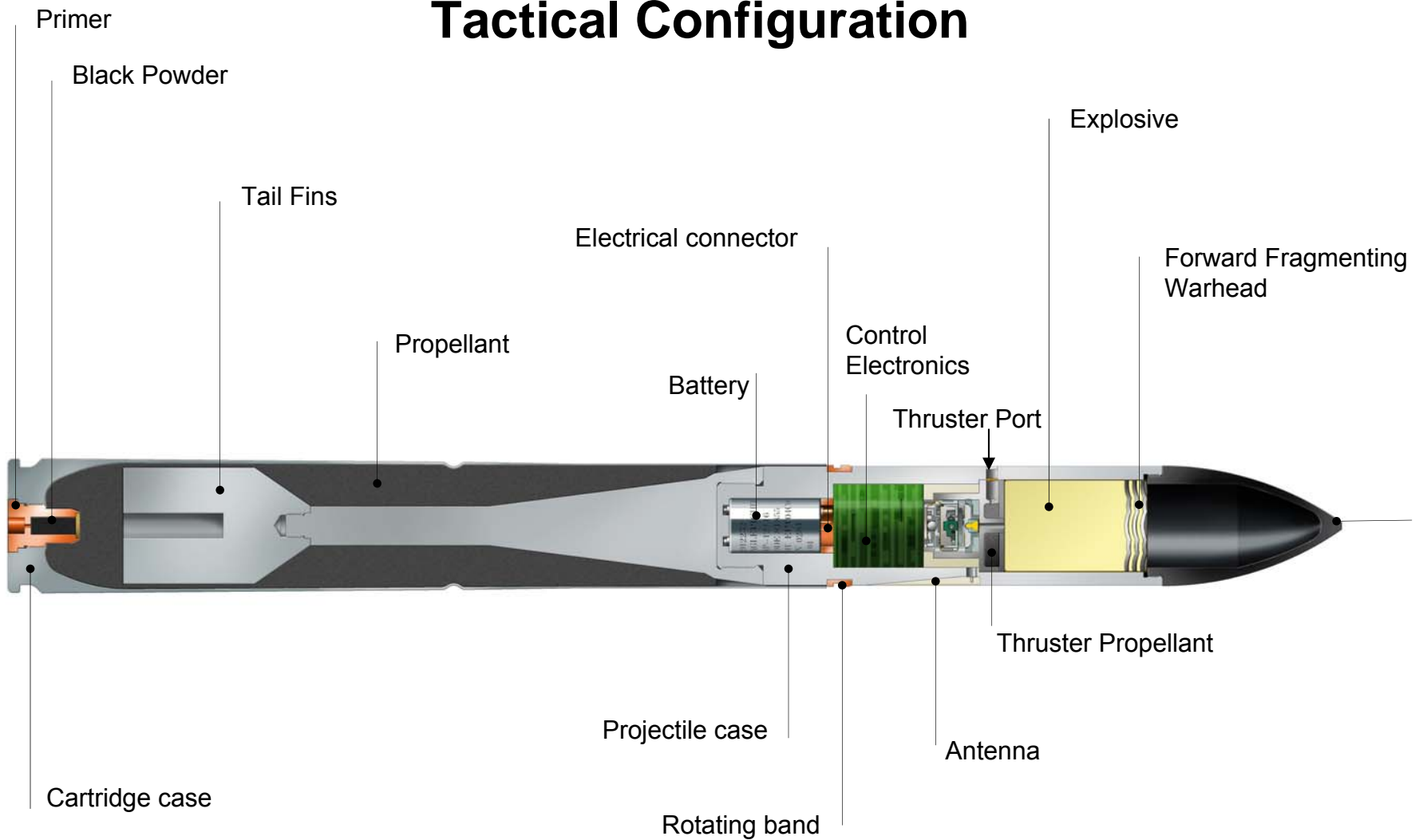
Miniaturized Transceiver



Current Baseline EAPS Projectile



Tactical Configuration

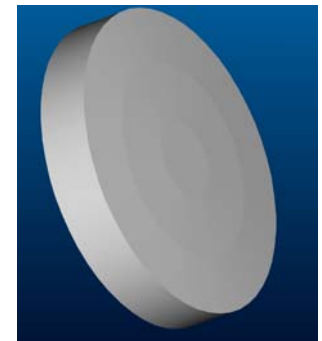
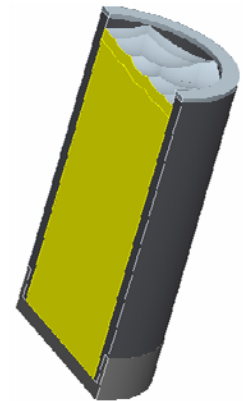




Dual Warhead Development Paths



- Baseline Design :
 - Multiple Explosively Formed Penetrator (MEFP) Warhead
 - Use of a existing technology
 - Form a low weight frag with high expulsion velocity
 - Single or Multiple Warhead Liners
 - Design EFPs to have a fixed dispersion pattern size
- Alternative Design :
 - Directional Fragmenting (DiFrag) Warhead
 - Leverage off the 120mm LOS-MP Warhead Technology
 - Release a low weight Pre-form frag with high expulsion velocity
 - Array of high-density tungsten frags in a matrix material
 - Design Warhead to have a fixed dispersion pattern size
 - Potential Upgrade to enhance lethality
 - Use of **Reactive Materials**
 - Encapsulate into a hollow Tungsten-preform
 - Adds Chemical Energy to propagate deflagration of Threat



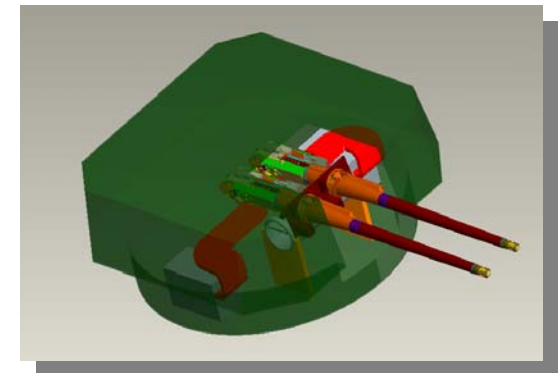


Proposed Follow-On Program



Advanced Technology Demonstrator (ATD) Program (FY09-FY10)

- Planned Activities
 - Integrate Course Correction and Warhead into a single EAPS Projectile
 - Introduce a electronic self-destruct capability to the EAPS Projectile
 - Develop a Prototype Autonomous Turret
 - Turret and Weapon elevation Drives
 - Link-less Feed System
 - Integrate the ATS Radar and Weapon Fire Control
 - Demonstrate a functional weapon system on an existing platform (LAV, BFV, or MLRS) against a dynamic RAM Target



**Twin 50mm Cannons
in EAPS Turret**



Summary



- EAPS is a Challenging Program
- Offers High Payoff
- Best “Team” Formed
 - Joint Government/Industry IPT
 - ATK Advanced Weapon Systems
 - ATK Medium Caliber Systems
 - ATK Launch Systems
 - Arrowtech
 - Technovative Applications
- Course Correction and “in-Flight” ATS Radar Data Link are “Break-through” Technologies
- If We are Successful, a Follow-on Integration Development Effort for FY09-FY10 is Likely



Notational EAPS Weapon Platform

