Extended Area Protection and Survivability (EAPS) ATO: Accomplishments, Status, & Future Plans

2015 Armament Systems Forum

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

Manfredi Luciano
973-724-3473
manfredi.luciano@US.army.mil
EAPS ARDEC APO

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EAPS Gun Baseline Concept

50mm Bushmaster Cannon

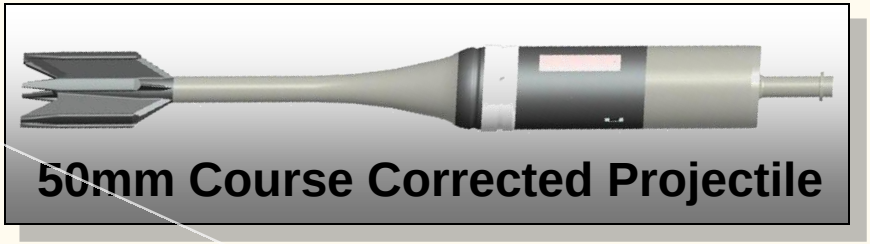
RF Data Link

Radar Track

Forward Fragmentation Warhead Detonation

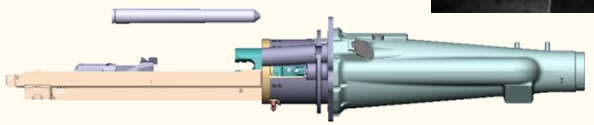
Mid-Flight Course Correction

Dual Barrel,10 Round Burst at 200 Shots per Minute Per

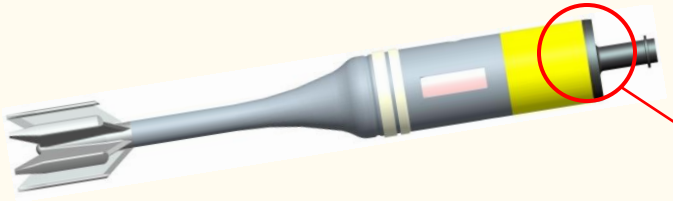


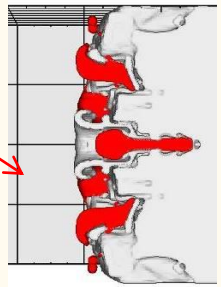
50mm Course Corrected Projectile

EAPS Gun System



–Hybrid Bushmaster Gun
–BMIV AFT RECEIVER with BMIII BREECH & FWD RECEIVER
–Accommodates EAPS 50mm Caliber and 538mm Cartridge Length





RF Communications, Single Shot Thruster,
Forward Frag MEFP Warhead

Interferometric Radar

Angle accuracy (x,y,z) < 0.3 mils @ 20dB SNR

Range accuracy < 0.2 meters

Track 6 threats & 10 outgoing interceptors/threat

Ground Station For Fire Control & Communication

Dual Cannons for 400 rpm Firing Rate
HEMTT Proposed Platform
Stryker Class Vehicle Possible
360˚ w/ Specific Engagements to 90˚ Quadrant

EAPS Program Accomplishments

- ATO-R (2006-2009)
  - System Study, Completed Prototype Component Design.
  - Demonstrated Sub System Technologies: Hybrid Bushmaster Gun, Command Guided Interceptor, Interferometry Radar. (TRL-6)

- ATO-ID (2009-2013)
  - Completed Tactical Sub System Designs.
  - Demonstrated Lethality Performance.
  - Fabricated & Demonstration Tactical EAPS Radar.
  - Established Battle Station/Platoon Concept & CONOPS.

- ATO-ID (2014-2015)
  - Dynamic Intercept Demonstration.
  - Demonstrated Sub System Integration.
    - Gun, Radar, Interceptor with Threat Tracking
  - Developed & Demonstrated Fire Control Algorithm.

Final Demonstration Planned for June 2015

EAPS 18 Month Plan: TRL-6 Integration

Objective: Tactical Intercept of UAS at ~1000m

	1Qtr FY14	2Qtr FY14	3Qtr FY14	4Qtr FY14	1Qtr FY15	2Qtr FY15	3Qtr FY15	4Qtr FY15
Gun/ Radar Integration					620	730	740	
Radar Dev			610					

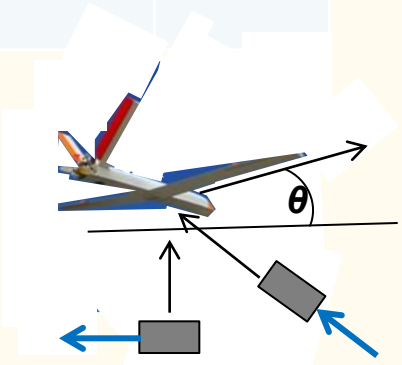
Kick Off

IPR

Demo

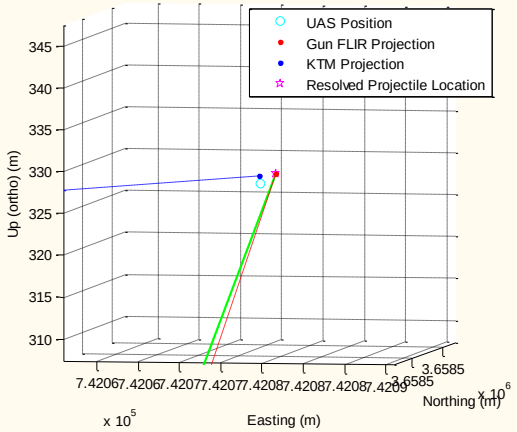
- 18 Months to get to Demo
- Intercept Class 1 or 2 UAS @ 1000m
- Use Fixed Double Mann Barrels
- Two Rd Command Guide Burst

- Develop Fire Control to:
  - ✓Track Threat
  - ✓Fire Guns
  - ✓Track Interceptors
  - ✓Command Maneuver
- Command Intercept Detonation

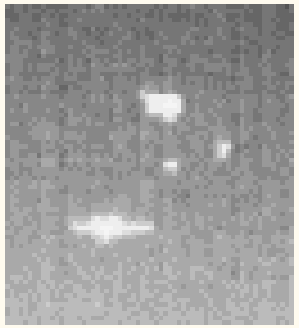


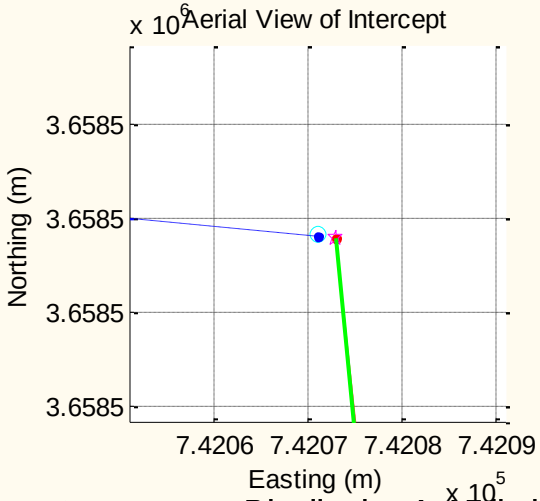
Lethality Methodology
Blast vs. Frag

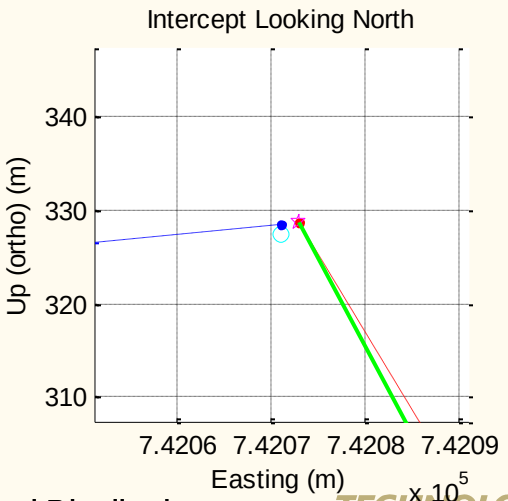
Test 620: Intercept Attempt
Demonstrates Fire Control Computations

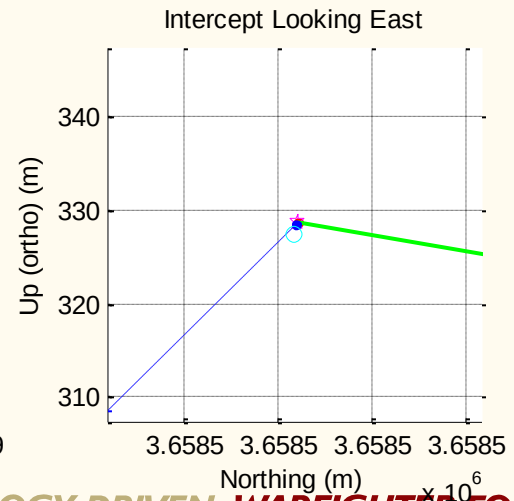


- Intercept Time:15.23.05.19.95
- Optical Scoring (<2m)
- Miss distance video analysis: 2.36m (right)
- Inert Warhead









EAPS Technology

- EAPS Gun Approach
  - Most Efficient for Small Area Protection & Single Point Protection
  - Self Contained System That Drives into Position
- Other Possible Applications
  - Requests for this technology: Navy Hypervelocity, SMDC
  - COB or Smaller Area Protection, Navy Threats, Navy Upgrade, RAAP, International, Tank & Med Caliber Command Guidance

Combination Missile & Gun System

-Offers Most Tactical Flexibility

-Current State-of-the Art in Area Protection is the Russian Pantsir

-Combines Guided Surface-to-Air Missiles,

-30mm twin barrel cannons

Russian Pantsir