U.S. Army Armament Research, Development & Engineering Center
Picatinny, NJ

Common Smart Submunition (CSS)

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APO CSS
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DTO JC.69

RDECOM

Background

- Common Smart Submunition is an Army Technology Objective (ATO) that began in FY05 and was completed 31 Mar 09
  - CSS will provide an increased capability to the warfighter through a variety of platforms (missiles, projectiles and UAS)
  - Achieved TRL 5
- Textron (Prime Contractor) was awarded a 40 month contract to build prototype submunition

ATO Focus

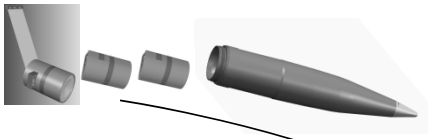
Requirements	Achievements
• Defeat T 90 armor	Met
• < 10 lbs	8.62 lbs
• < $10K/submunition	$7.5K/10,000/yr
• Probability of Detection >.95	>.85*
• <128mm	128mm
• Multiple platform applicability	Met
• UXO <1%	TBD**

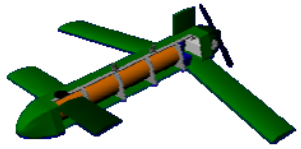
*This is an average from two tests

** All Systems are designed for meeting this requirement

CSS Concept of Operations

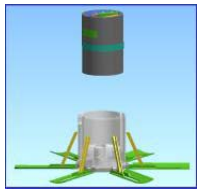
Dispense From Carrier

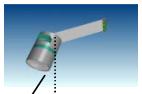


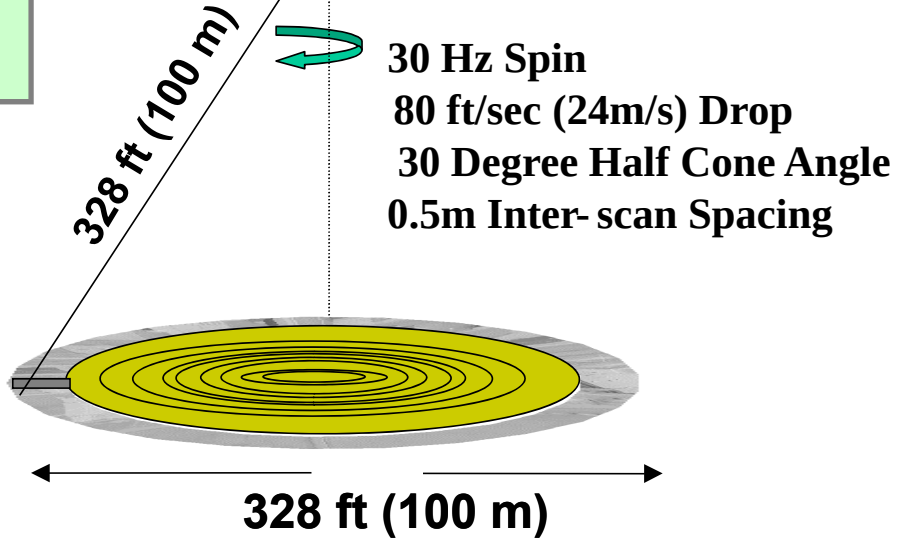


Search for Target;
Detect and Recognize Target;
Select Aimpoin; Target KIllt

Discriminating
Affordable
Lethal





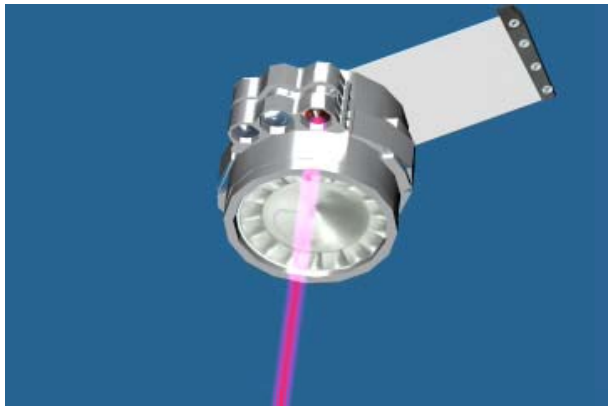


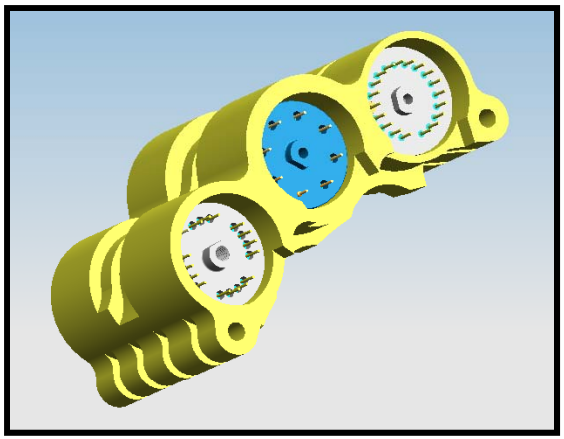
30 Hz Spin
80 ft/sec (24m/s) Drop
30 Degree Half Cone Angle
0.5m Inter- scan Spacing

Applications:
- Missiles
- UAS
- 155mm Projectiles
- Scorpion

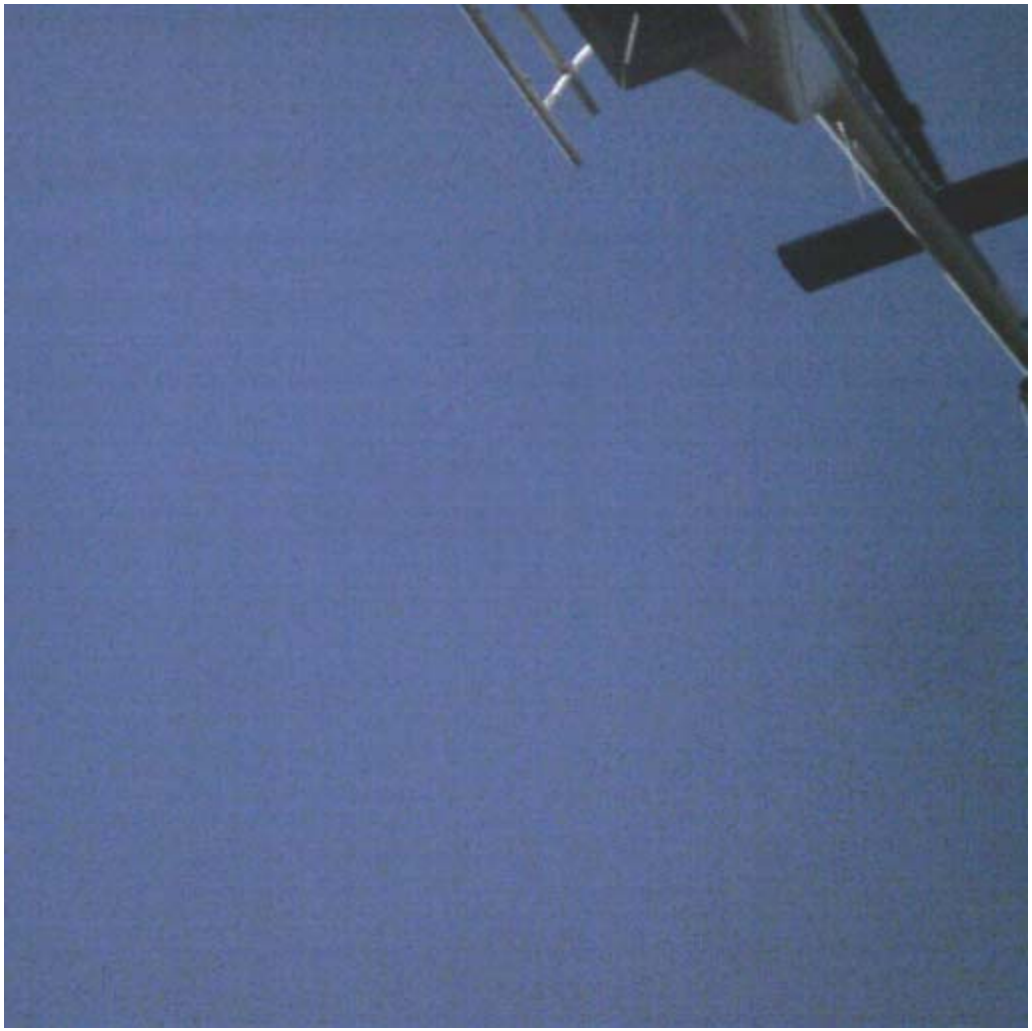
Technologies Explored

- Sensors
- Algorithms
- Warhead
- Orientation and Stabilization

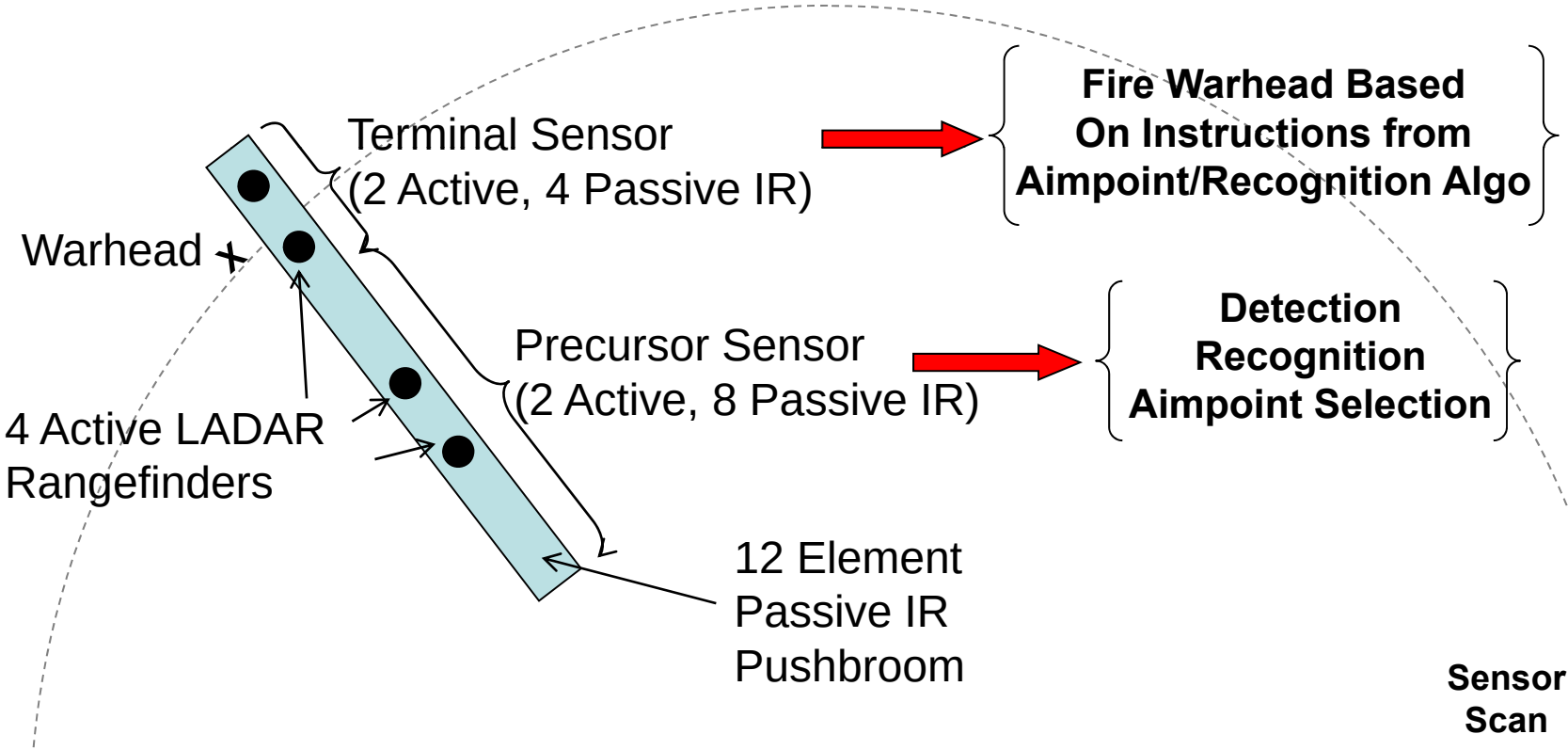




Orientation and Stabilization –helo drop



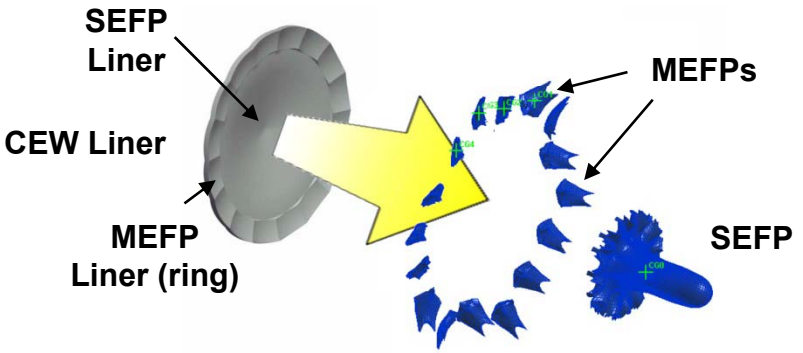
CSS Sensor Overview

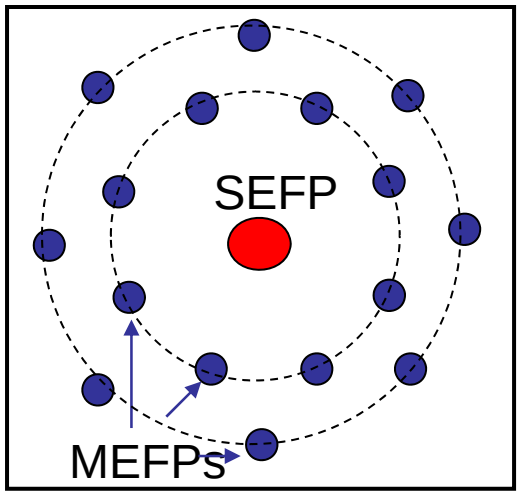


Captive Flight Testing

CSS Warhead Requirements

- Standoff: 100 m
- Dynamics: 30 hertz @ 30° angle
- Warhead Type: Combined Effects
  - SEFP
    - Accuracy: 50 cm @ 100 m
    - Penetration:
      - Proof Target: X
      - Semi-Infinite Penetration: Y
  - MEFP
    - Alternate spay angles (0.4° & 0.8° ± 0.4°)
    - Penetration: Z (70 m.)
    - Velocity at 100 m

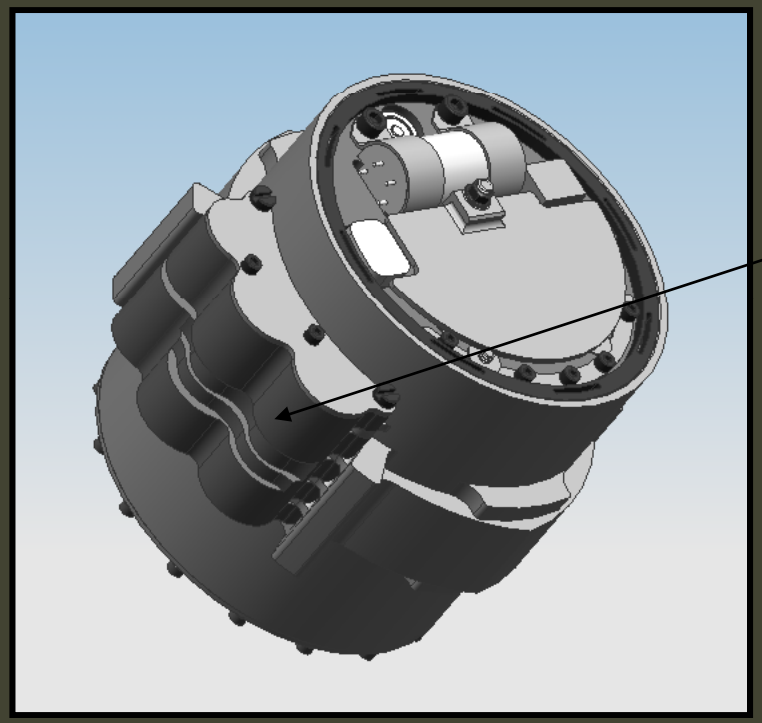




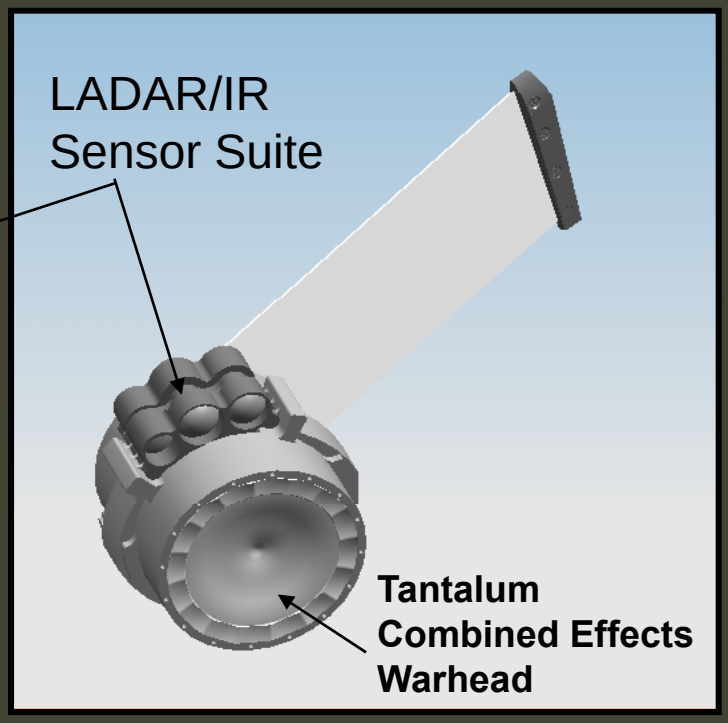
Desired on Target Pattern

CSS Current Design

Common Smart Submunition (CSS)



Before deploying Samara Wing and sensor suite



After deploying Samara Wing and sensor suite

- Nominal Length – 4in (102.4mm)
- Nominal Diameter – 5.1in (128mm)
- Nominal Weight – 8.6lbs (4.0kg)
- Nominal Cost - $7.5 k (10,000 MSRP)

Summary

- ATO completion March 09 TRL 5 achieved
- Continuing efforts for Scorpion, 155mm Projectile, NLOS-T and UAS
- Congressional program for UAS application