Joint Armaments Conference

Dallas, Texas

May 17-20 2010
JOINT FAMILY OF WEAPONS

- 35MM Revolver Cannon & AHEAD Air Bursting Ammo

- Mission Area: SUW/SHORAD/MOUTS/Force Protection
Operational Capability:
- Scalable Lethality capability in one weapon
- Operational range 300M to 5 KM
- Unmanned/Modular/No thru deck penetration
- Rapid Reload 252 Ready Service Rounds on Mount

Operational Capability:
- Area- and point-defence against air threats, including low RCS & C-RAM
- Continuous full hemisphere surveillance >20 km
- Short reaction time Automatic (TEWA)

Operational Capability:
- Defeat Ground Targets - Air Defence
- Counter Mortar (RAM) - Infantry Flank Protection - Urban Warfare - Scalable Lethality

Operational Capability:
- Ahead Air Burst Munition - One Round for all Missions
Summary of Advantages - Part 1

- Multi mission = C-RAM/ SHORAD/ Camp protection/Force Protection/Counter Swarm/
- Light weight + Modular design = Air Transportable
- Mature technology - NDI
- Open Architecture
- No auxiliary systems = lower maintenance
- Linkless feed system = Reload 250 rds ~ 9 min
- Optimized health monitoring = <MTBR
- Off-board diagnostics = reduced manning
- On-mount local reference system
- Low power requirement < 2KVa
- Network Enabled
Summary of Advantages Part 2

- Engage all air & ground targets +85 to -15
- Self contained casualty power
- 250 rounds on mount = 10 - 20 engagements
- Selectable Rate of Fire 1000 RPM/200 RPM/single shot
- Fully stabilized
- Unmanned Gun System
- No hot gun issues
- Common parts & fasteners = less spares
- Minimum tool set - one 5mm & one 8mm wrench
- One round for all missions
- Safe ammo - no H.E.
- Lowest TOC
Summary of Advantages Part 3
Naval version specific

- Light weight 3.6t to 5.2t depending on configuration
- Minimum Structure to install
- No auxiliary systems = lower maintenance
- Modular design = 30 min swap out
- On-mount local reference system = easy cross decking
  “Personality” card in the on-mount GCM = easy cross decking
AHEAD Lethality Mechanism
Selectable Firing Rates
Single Shot - 200spm - 1000spm
35mm Air Burst Munition
Kinetic Energy Time Fuze (ABM-KETF)

Notice: The payload (500g) is composed of cylindrical W-Subprojectiles (here 3.3 g each). For engagements other than AA (e.g. G-to-G) the mass of the subprojectiles can be reduced accordingly (e.g. 1 to 1.5 g)
AHEAD 35 mm ABM
Subprojectile Dynamic Parameters

Velocity and perforation
Subprojectile density (#/m²)
Striking area (diameter)

Range (m)
0 10 20 30 40

Subprojectile Density Valid for 3.3 g Subprojectiles
Payload Foot-Print

35 mm ABM (Ahead):
152 subprojectiles of 3.3 g

35 mm ABM:
341 subprojectiles of 1.5 g
On-line Compensation of Muzzle Velocity Variation

Fixed Time Programming

On-Line $\Delta V_0$ - Compensation

Firing Range approx. 1600m

400% Improvement
Muzzle Velocity Correction

Ahead
muzzle velocity uncompensated
Four Chamber Revolver Cannon
Sample Target Sets

1. Boghammer
2. UAV 12’ wingspan
3. Periscope
4. 2” Armor Plate
Helicopter Target (UH-1, Static)

- 2 Shots
- Range: 1500 m
- Entry Side
- Ref.: APG/Oct. 98
U.S. Army Breeching Technique
Breeching Fire

8” Concrete Wall
Double Steel-Structure Reinforced

Video: M1 15962BA
Neutralizes Heavy Armor
Base Defence – Counter Mortar

Demonstrated 12.2004
Effective Against ATW Positions
Dismounted Troops

Firing Range: ~ 1 km
Simulated Range: ~ 1.2 km
4 Rounds (Single Shots)

Target Area: 10 (width) x 30 (depth) m
The target area is 27 m higher than the gun muzzle

4 Rds @ 135 Subprojectiles = 540 SP
Total: 107 Plate Perforations (~ 20%)

# of Plate Perforations =

9 Plates @ 1 m²:
2 mm Steel plate 37-2
2 m high x 0.5 m wide

Firing Direction
Naval Version Modular Options

- Fixed installation 4.2 tons
- Modular (ISO) Installation 5.3 tons
- Modular Install w/ Optional EO/IR FCS
Skyranger – Turret Version

- Compatible with: Pirahna III/IV, Stryker, etc
- Design Basis for Millennium Gun
- On Mount EOD
- Capable of Netcentric Operation
- Capable of Independent Operation
Turreted Gun Version

Advantages

- STRYKER elevation +15, Depression -5
- M1/M1 A2 elevation +20, Depression -10
- BFV elevation +60, Depression -10

Perfect elevation arc: -10° up to 75°
very fast turret drive dynamics
Ground Operation Modes

**Point Target** (incl. ATGW-Bunker, Prone & Covered Troops, MBT, Helicopter):

**Area Target** (Diffused Targets):

**Linear Target** (e.g. road with vehicles):

**Pre-Determined Air Space** (e.g. swarm of helicopters):
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Questions?

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