46th Annual Armament Systems: GUN & MISSILE SYSTEMS

Direct Fires & Precise Weapons for the modern battlefield

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2011

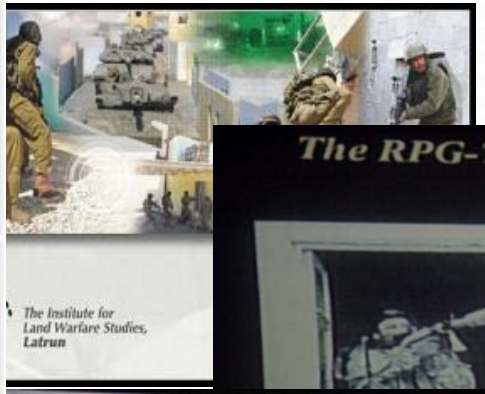
Israel Military Industries Ltd.
Munition Systems Division (MSD)

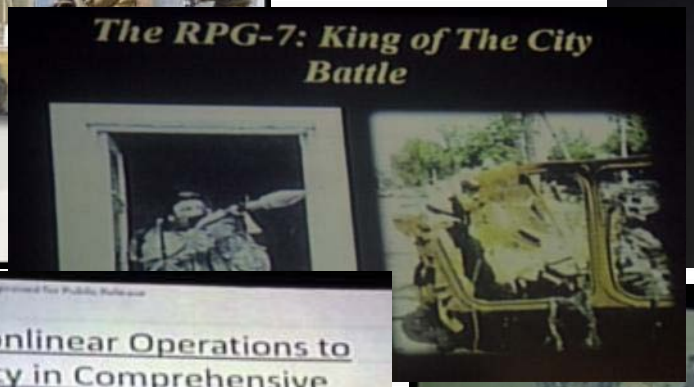
Lessons learned from the battle field

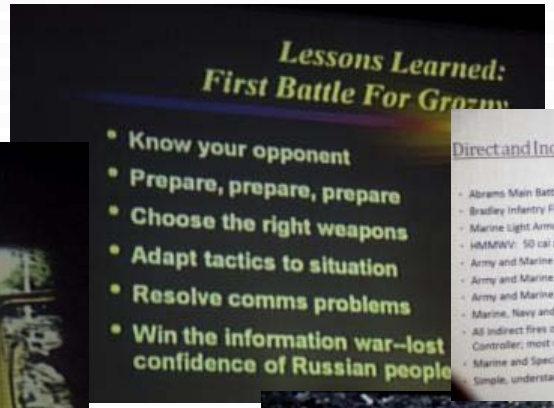
▲ 북한의 공기부양정은 크기가 작고 무장도 허술하지만 후방 기습침투에 사용될 경우 엄청난 위력을 발휘할 수 있다. 서울경제 파퓰러사이언스 3월호 www.popsci.co.kr

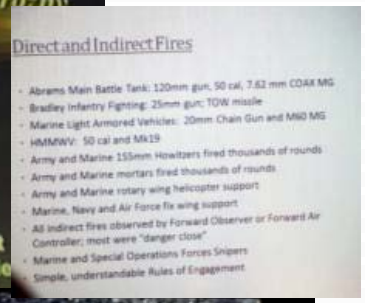
공기부양정은 해안지대 또는 늪지대 등 물과 땅이 엮혀있는 곳에서도 빨리 움직일 수 있다는 점 때문에 군용으로 엄청난 잠재력을 보유하고 있다.

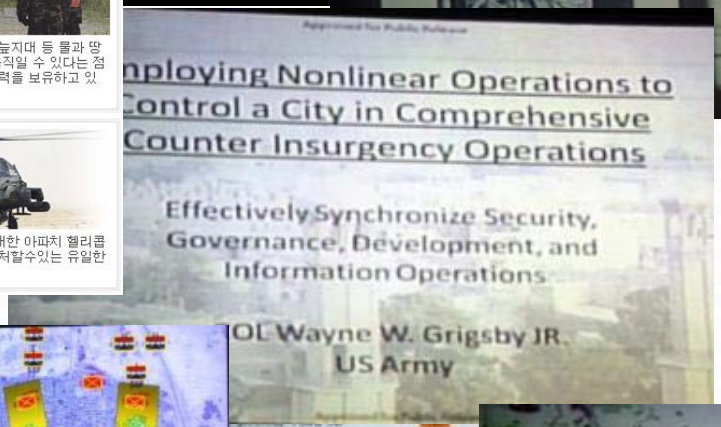
대전차미사일 헬파이어를 탑재한 아파치 헬리콥터는 북한의 공기부양정에 대처할수있는 유일한 전력으로 평가되고 있다.

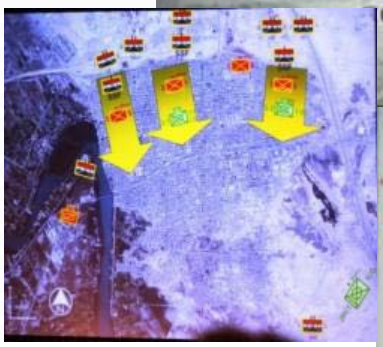


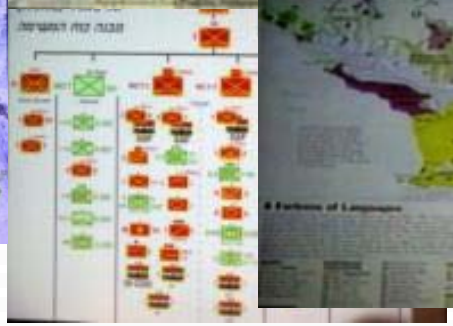


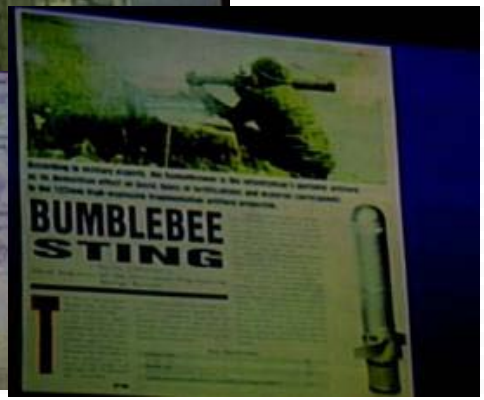










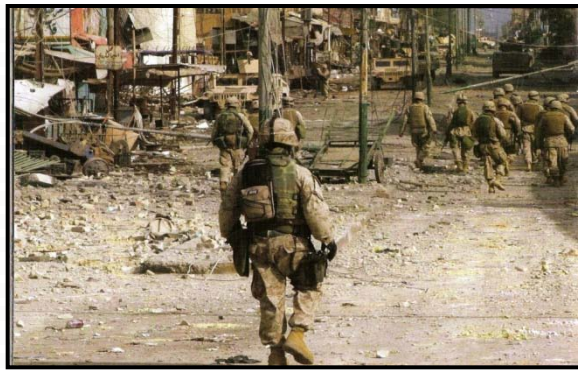


The Battlefield Scenarios

War

Non Limited Conflicts at High Friction (NLCHF) / Major Operations

Limited Conflict at Medium Friction (LCMF) / Routine security operations



Challenges (Typical targets) Vs. scenarios

	Dismounted Infantry (Short / long range A.T Teams…)	Tanks	Assault Helicopter	IFV's	Military infra-structures (Bunkers, field fortifications …)	Mines / IED's	Buildings	Snipers	Tracks / Cars
1) WAR	+	+	+	+	+	+	+	+	+
2) NLCHF	+			+	+	+	+	+	+
3) LCMF	+					+	+	+	+

NLCHF= Major Operations including MOUT

LCMF= Routine security operations

Direct Fires & Precise Weapons for the modern battlefield

120mm Guided Mortar Munitions (GMM)

Indirect Fire

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System Requirements

120mm mortar bomb which provides combat teams with organic, rapid response, and all weather indirect fire capability

The Requirements:

- Precision
- First round on the target
- Increased lethality
- Minimized collateral damage
- Reduced logistical support
- Leveraged joint fire networking

Performance Goals

- Ballistic Range : 7.2 Km (K6-charge 5)
- Gliding range : ≈ 10 Km (K6-charge 5)
- GPS guidance, CEP (Circular Error Probable) < 10. m
- Laser guidance, CEP (Circular Error Probable) < 1.5 m

Operational Sequence

- The bomb could be fire from existing platforms
- The bomb operation procedures are like regular bombs except loading of mission data


120 GMM
Guided Mortar Munition
Video Clip

“HORNET”
120-mm Light Mobile Mortar System

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IMI's Hornet System

An Organic, light, highly mobile and Helicopter carried Weapon System, that consists on off-the-shelf military components.

The solution

To generate accurate and effective fire to support the Operational forces (Activities of infantry) in an independent and fast fire networking for immediate response.

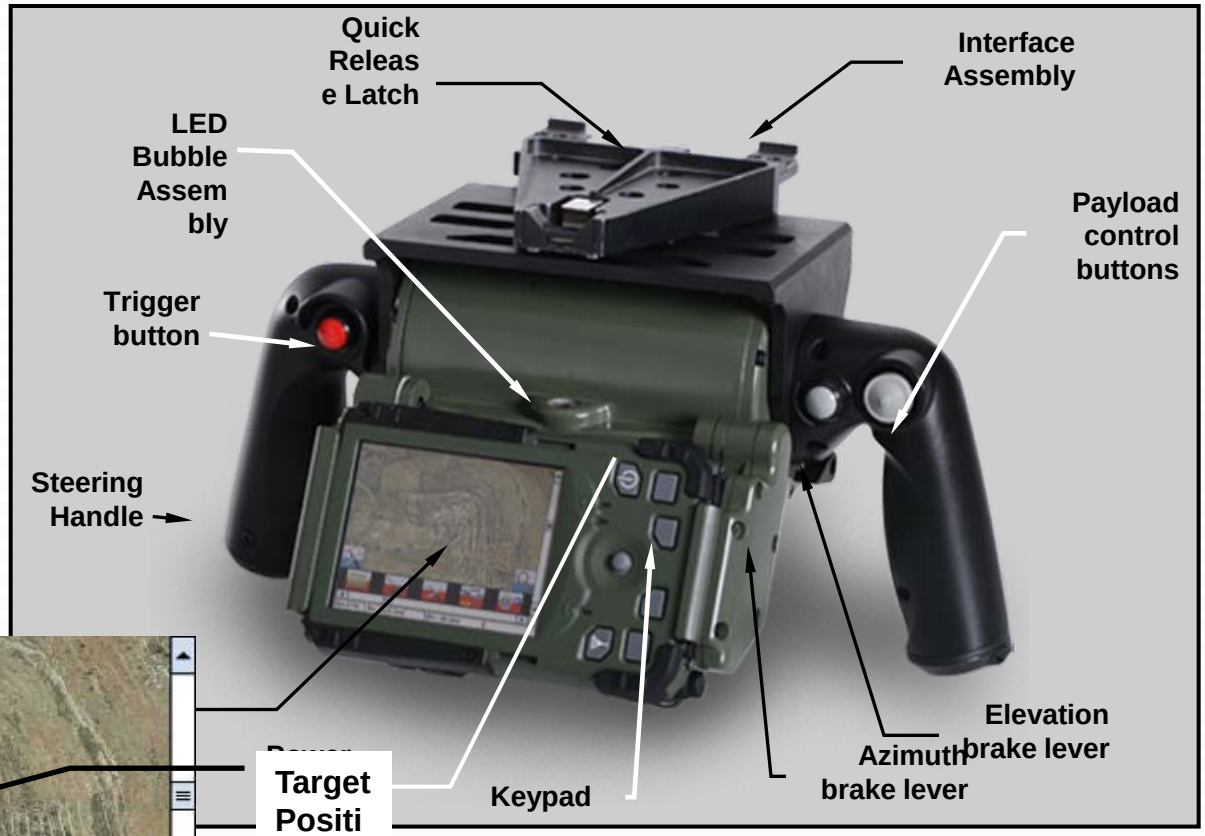
Two 4X4 All Terrain Vehicles (ATV)

Light Mortar

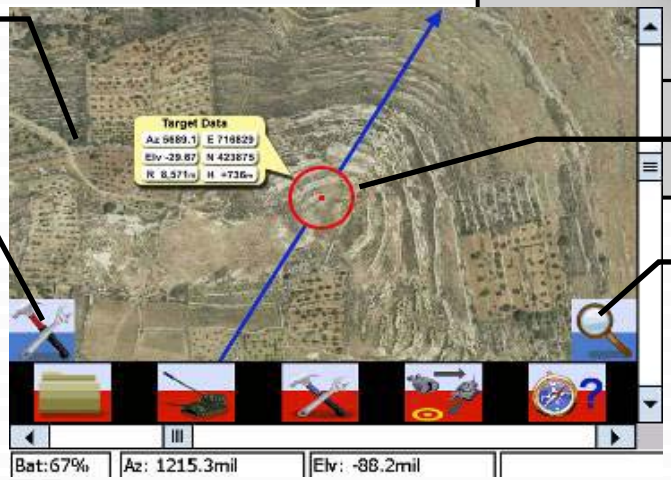
Munitions

Command Control Communication & Computer (C4) Systems

Passive Target Acquisition Goniometer System

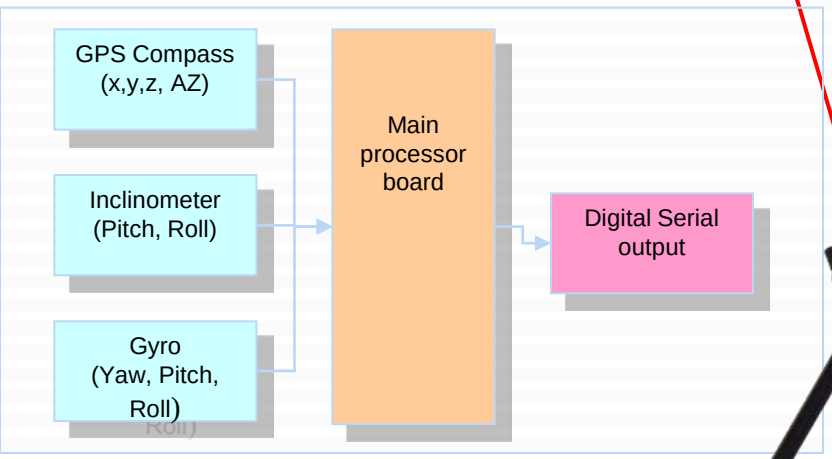


Target Screen



Light 120 mm mortar

Mortar's Positioning & Orientation Sensor Box (POSB)



Mortar

Mortar Fire Control System (MFCS)

System Advantages

Optimal and most cost-effective solution for the user's Elite Units or Special forces:

- High Mobility
- First Round on Target - capability with low collateral – damage when firing the 120mm GMM.
- Can be carried by helicopters.
- Capable of firing wide-rang of mortar ammo. (GMM, Smoke, Illumination etc.) for various operational-tasks.
- Increasing the lethality and survivability of the fighting-forces.

120 mm HE–MP–T, M339

Multi-Purpose Tank Cartridge

Direct Fire

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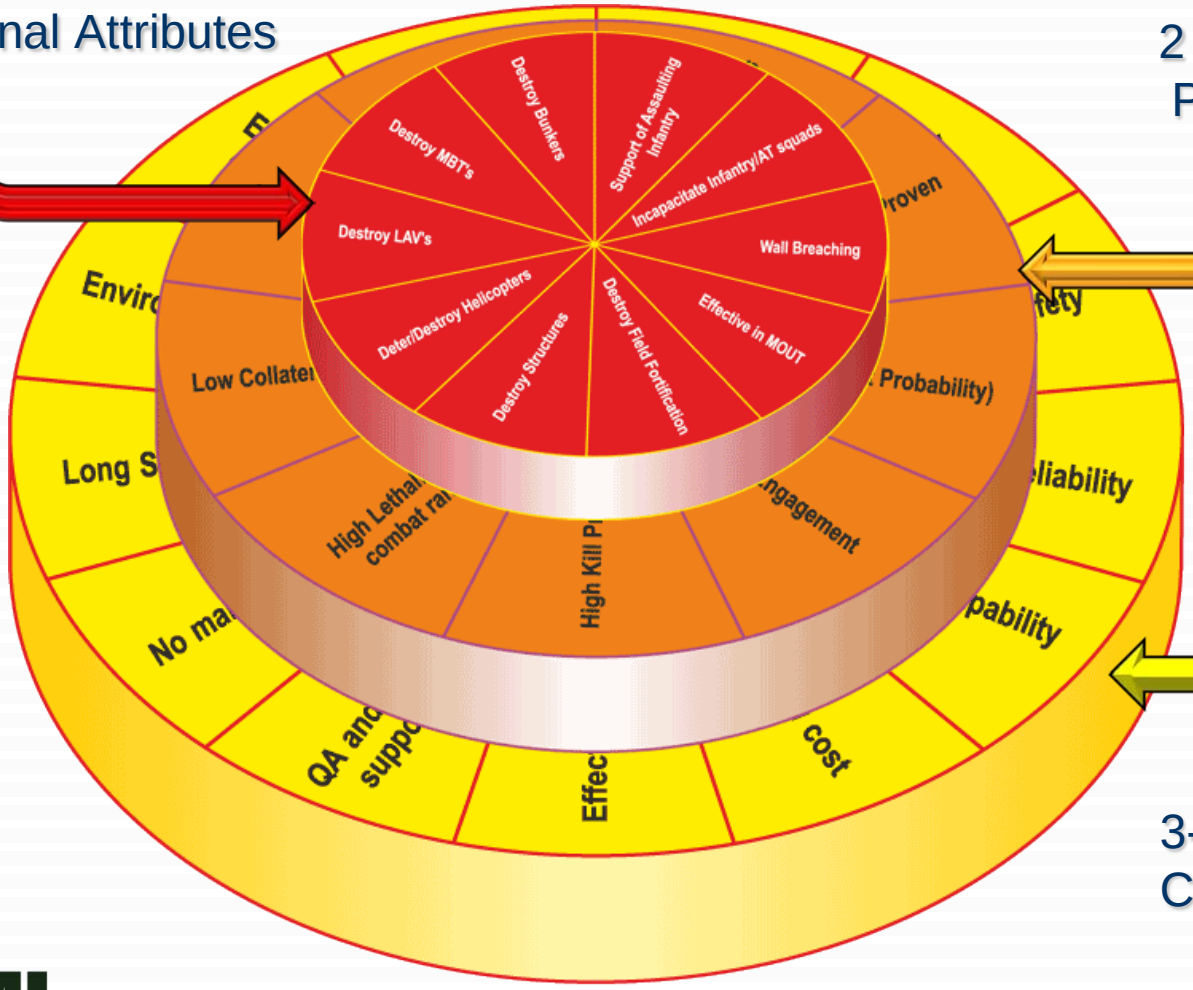
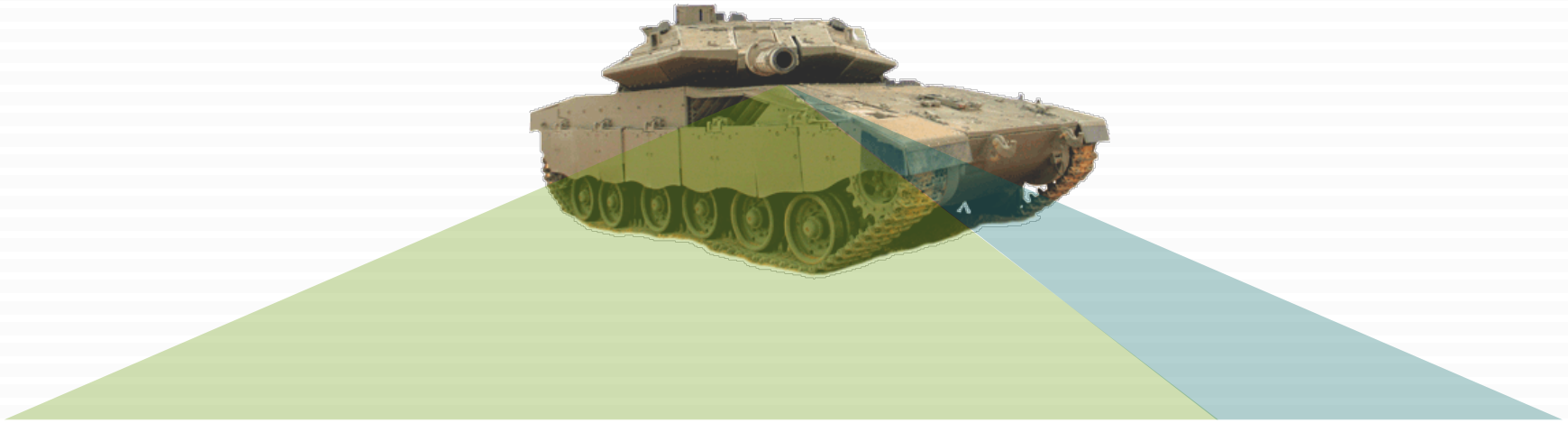
The Main Requirement of The Armor Corps - Analysis

1 – Mission Statement / Operational Attributes

2 – Technical and Performance



3- Certification and Capabilities







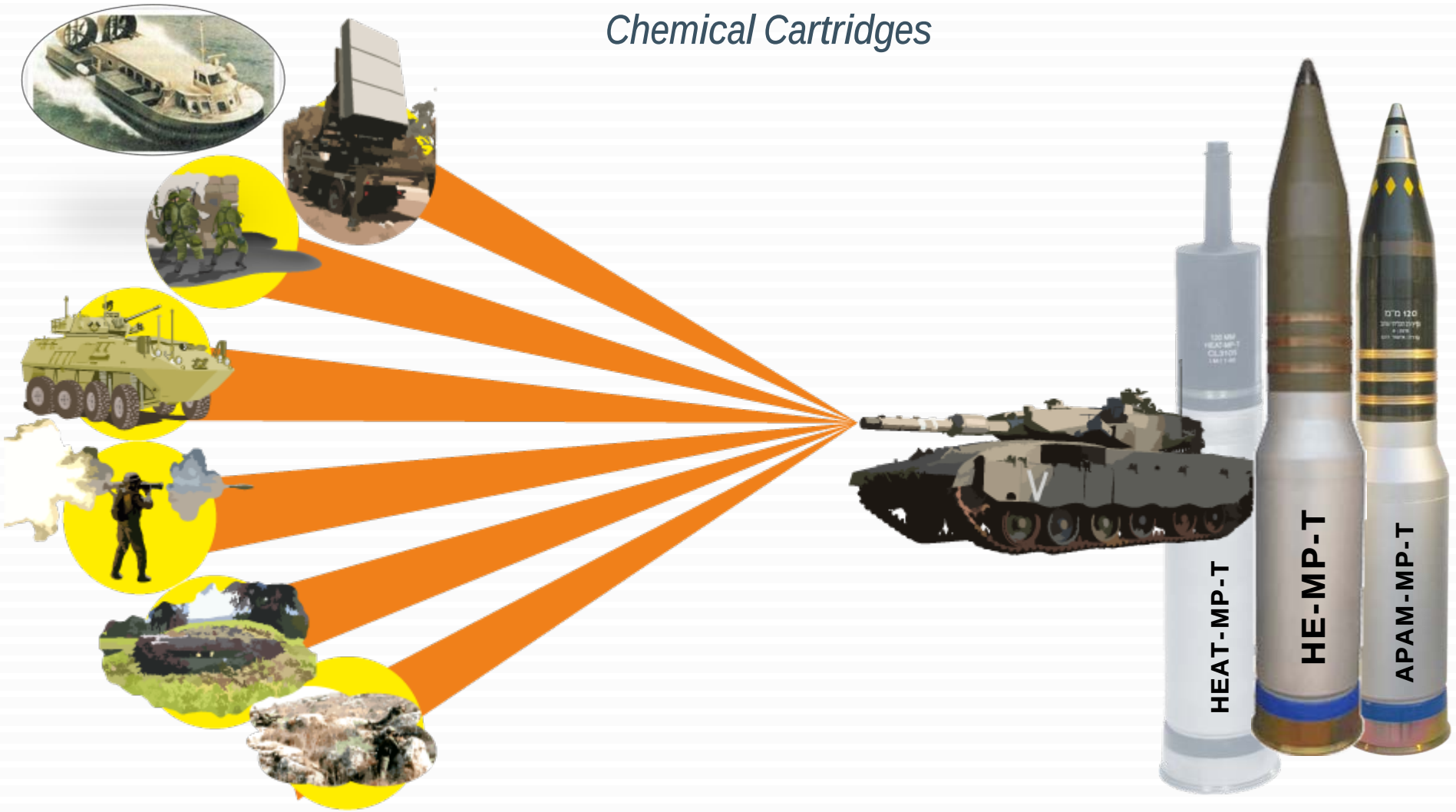


Urban Terrain	Structures	Field Fortification	Armored Vehicle	Anti-tank Squad	Helicopter	Tanks


Chemical Cartridge	Kinetic-Energy Cartridge

Destroy Multi Threats

Chemical Cartridges



HE-MP-T 120, M339 - Introduction

- Multi-Purpose Tank Cartridge
- Can be fired with 120mm smooth bore guns L44/L55
- Developed and qualified according NATO STANAG 4385 and IDF requirements
- Complies with:
  - STANAG 4493
  - STANAG 4369 & AOP 22
  - STANAG 4157
  - MIL-STD-810, ITOP and others
- IM round includes –
  - HE (CLX663) – Qualified by the IDF
  - LOVA propellant (optionally) – Qualified by the IDF

HE-MP-T 120, M339

Cartridge length	984 mm
Cartridge weight	27 Kg
Projectile weight	17 Kg
HE weight (TNT/IM-CLX663)	2.7/3 Kg
Muzzle velocity	900 m/sec
Chamber pressure	3,300 bar
Accuracy (SD)	0.3 mil

Electronic Device (*)

Warhead

» Projectile

Combustible Cartridge Case

Electric Primer

Propellant (M26)

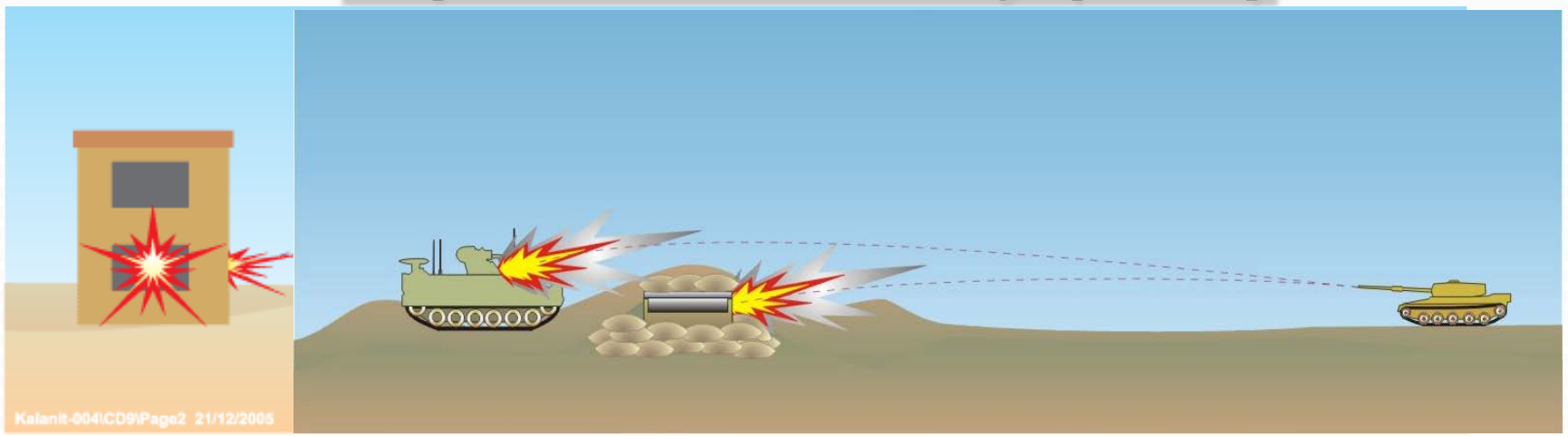
Stub Case

» Propelling System

Data Link

(*) – Programmable Electronic Base Fuze

Impact - with Delay (PDD)



Typical penetration
(Ø 40~60 cm)

Line of site

Penetrate at least, 200mm double reinforced concrete wall

Impact - with Delay (PDD)

Before

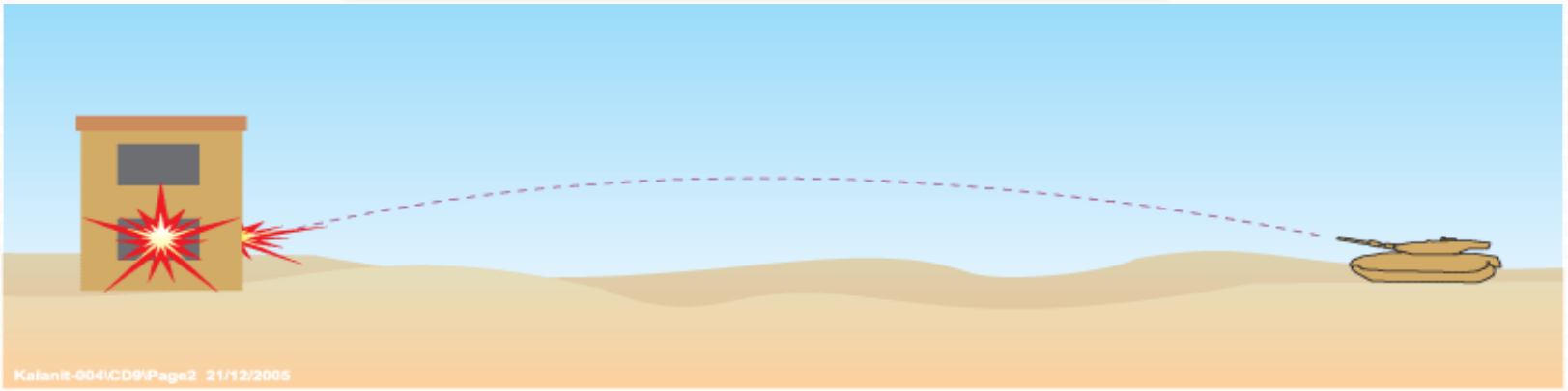
After

Impact - with Delay (PDD)

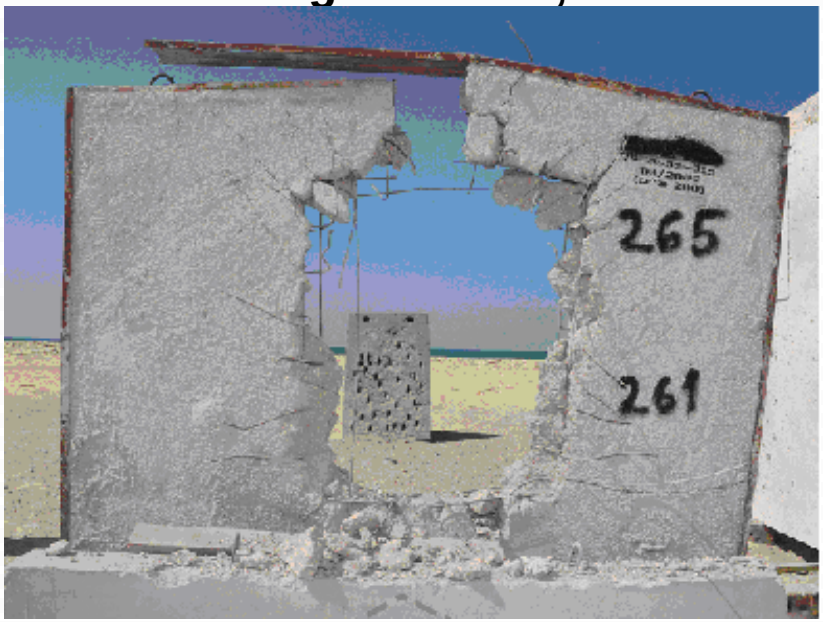
Before

After

Impact - Super Quick



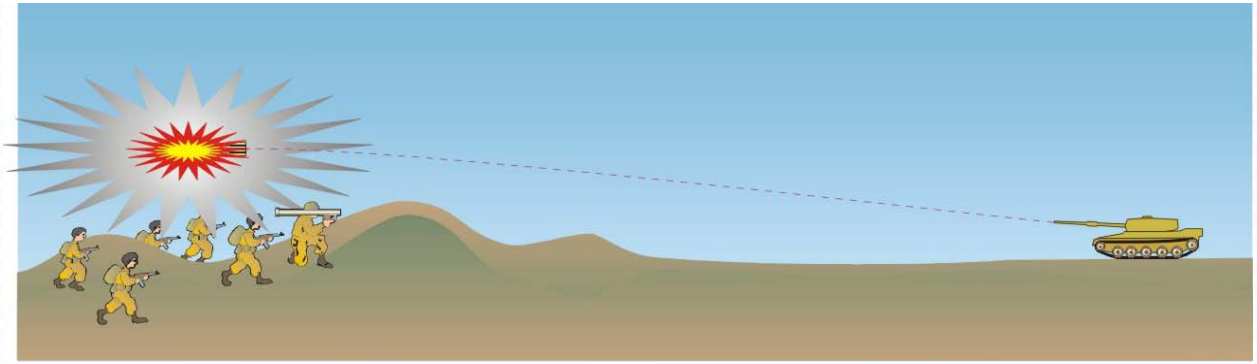
Range = 300 m, T= 200mm, 30MPa, Hole = 120x180 cm



Line of site

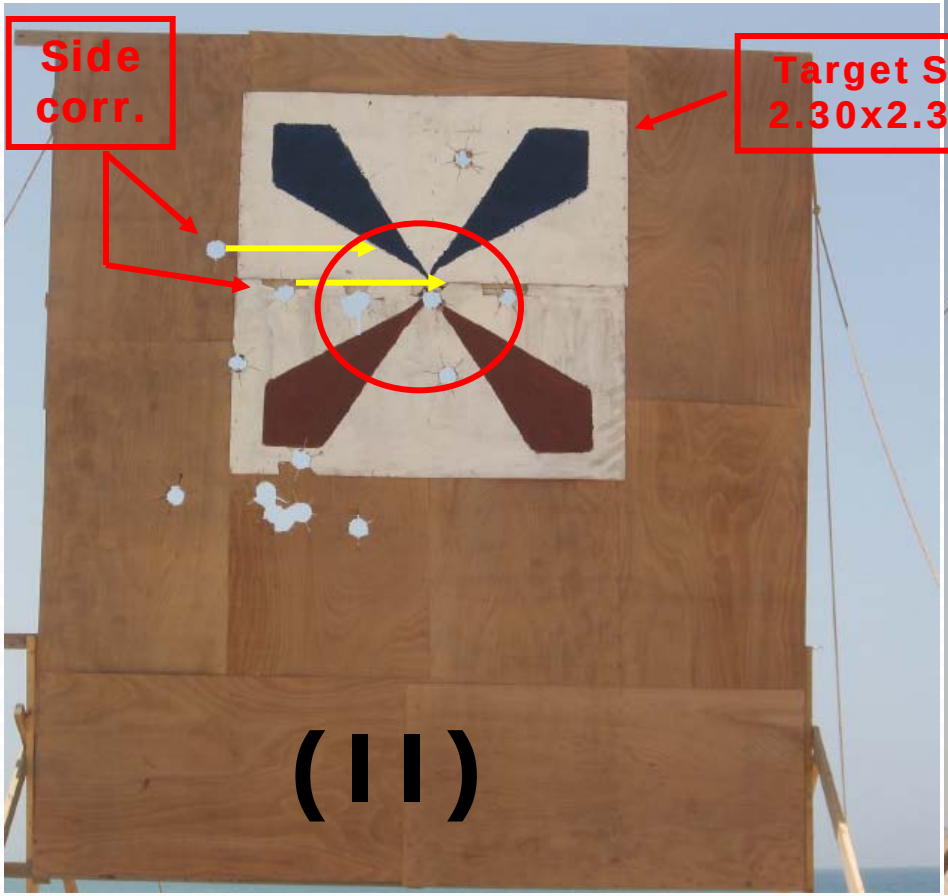
Breach wall for infantry pass by using 2 rounds

Air Burst



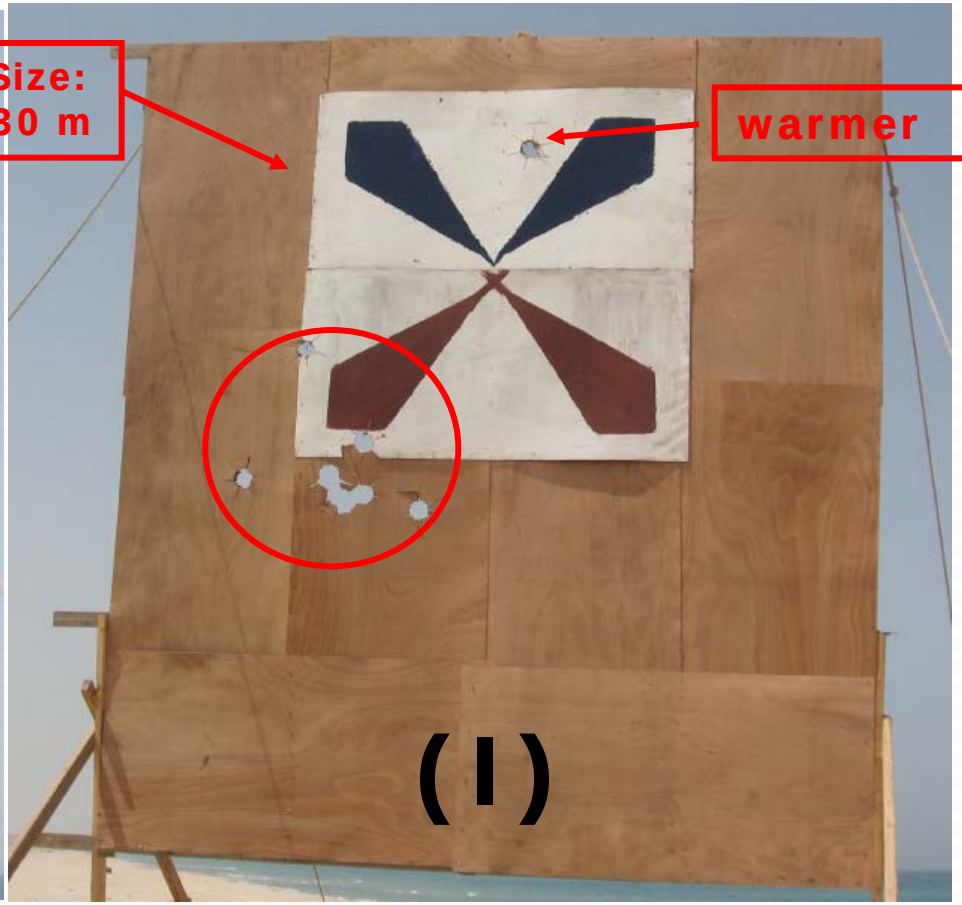
Air Burst operation – view from the tank

HE-MP-T 120 – Accuracy Test (2,000 m)



7 Rounds

0.12x0.19 mils



7 Rounds

0.18x0.19 mils

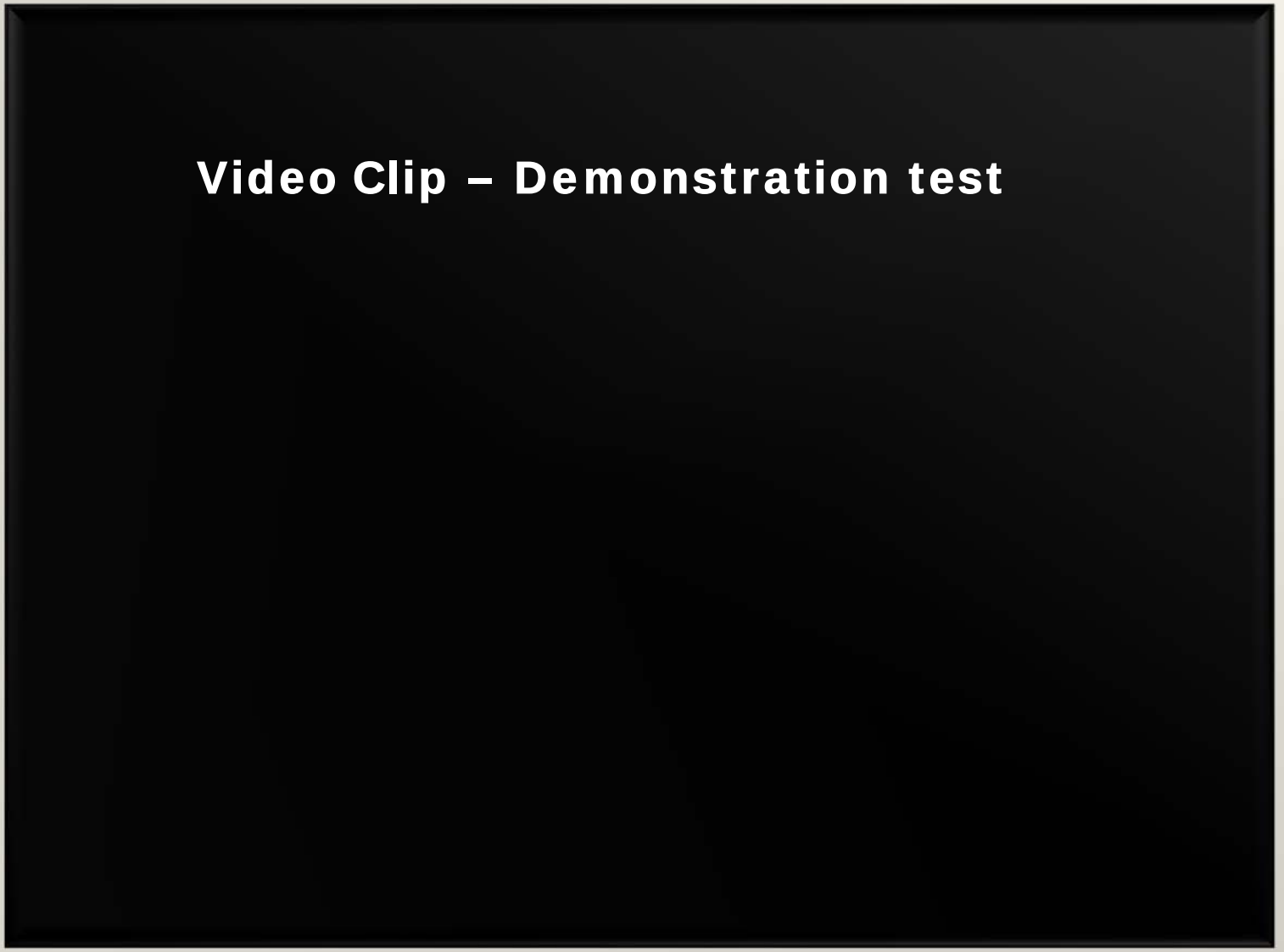
IM Reaction Levels (with CLX663)

IM Stimulus	Cond.	Reaction Level	Results
Liquid Fuel Fire (Fast Cook-Off)	N	5	
Slow Heating (Slow Cook-Off)	N	5	
Bullet Impact	N P	4 5	X3 In Fuze  X3 In Primer 
Fragment Impact	N P	5 5	In Fuze  In Primer 
Sympathetic Reaction	N	4	
Shaped Charge Jet Impact	N	1	

1 – Detonation; 2 – Partial Detonation; 3 – Explosion; 4 – Deflagration; 5 - Burning

N – Without Package; P – In Package

Video Clip – Demonstration test



Every one could sling at a hairbreadth and not miss

Judges 20/16

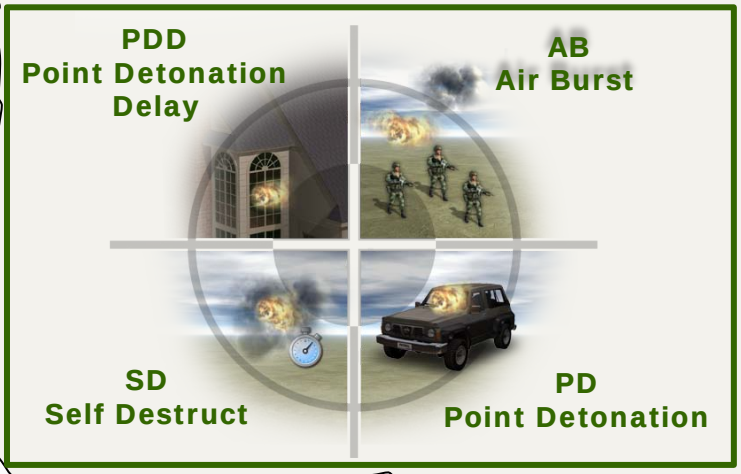
MPRS

More Than an Assault Rifle

Direct Fire

MPRS - Multi Purpose Rifle System

•Unique multipurpose 40mm grenades



•Launcher breechblock inductive coil

•Bi directional data link

•Data I/O interface to C4I systems

•Keypad (x2)

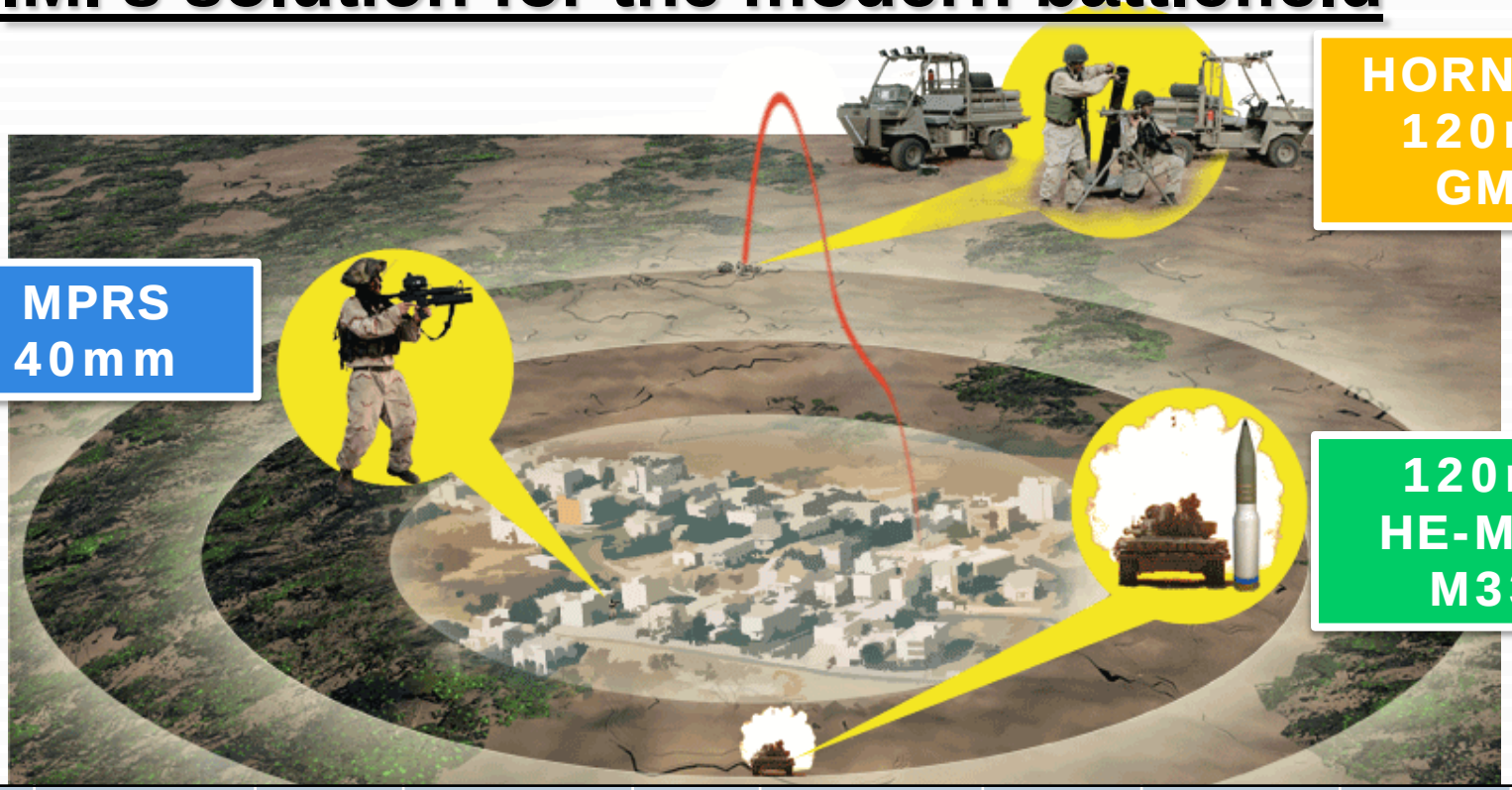
•Internal LRF , eye-safe invisible

•Ballistic computer - FCS

•Direct view optics

•Sensors (inclinometer etc.)

IMI's solution for the modern battlefield



	Dismounted Infantry (Short / long range A.T Teams…)	Tanks	Assault Helicopter	IFV's	Military infra-structures (Bunkers, field fortifications …)	Mines / IED's	Buildings	Snipers	Tracks / Cars
NLCHF	√			√	√	√	√	√	√

Thank you for your attention !

QUESTIONS ?

The Technology is Proven and In the Market