

Expanding the Traditional Effectiveness Window

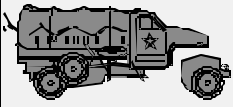
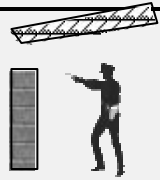
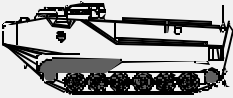
Jan Hasslid Program Manager

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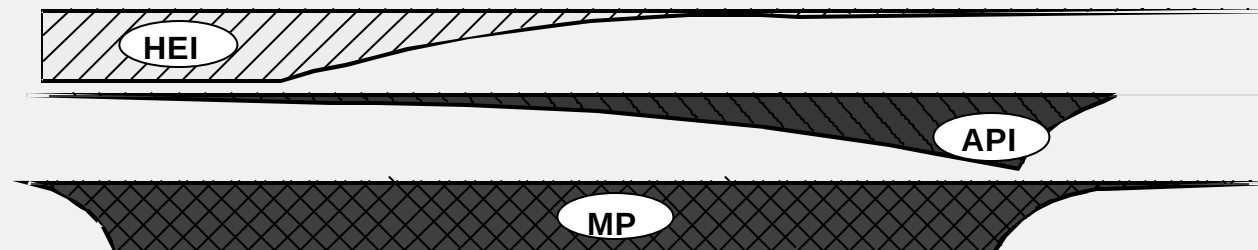
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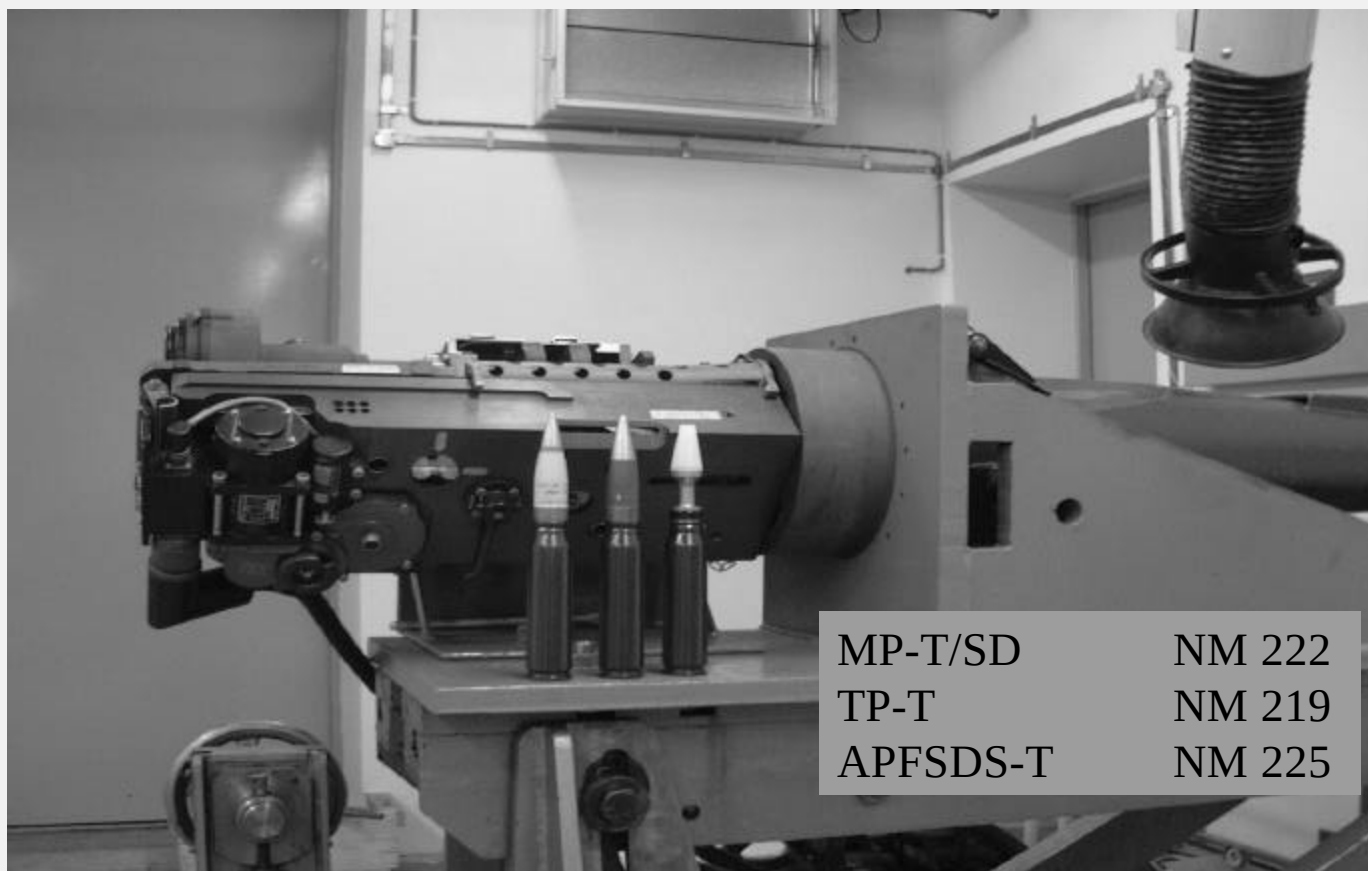
TARGETS:

				
UNPROTECTED PERSONNEL	UNPROTECTED VEHICLES	LIGHT FORTIFICATIONS	LIGHT ARMORED VEHICLES	HEAVY ARMORED VEHICLES
				
LIGHT NAVY APPL.		HEAVY NAVY APPLICATIONS		
				
HELICOPTERS		FIGHTER AIRCRAFT	FIGHTER BOMBER TRANSPORT AIRCRAFT	

SHELL TYPES:



*30x173 Family of Ammunition qualified
with the Bushmaster II mod 0 & mod 1*



MP-T/SD	NM 222
TP-T	NM 219
APFSDS-T	NM 225

AAAV TGT Matrix

- | | • <u>Light</u> | <u>Medium</u> | <u>Heavy</u> |
|----------|----------------|---------------|--------------|
| | • Infantry | BTR/Urban | BMP |
| • HEI | *----- * | | |
| • MPLD | *----- * | | |
| • APFSDS | | | *----- * |
| • ABM | *----- -?????* | | |

-
- *Expanding the Effectiveness Window*
 - MRP-T *..... *
 - ABMP-T*----- *

Pushmaster II- Traditional Long Rod Rock Penetration



M E D I U M C A L I B R E

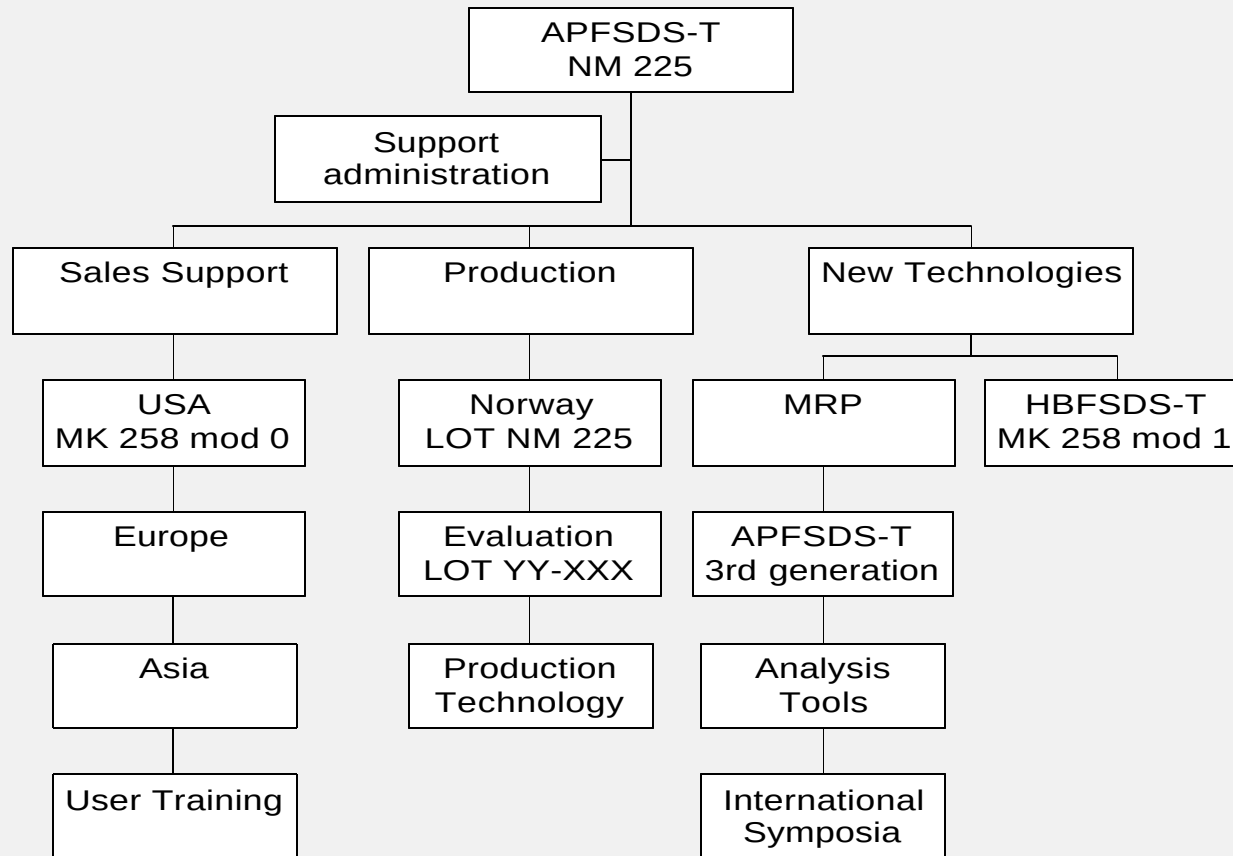
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Bushmaster II-Optimized Long Rod Granite Rock Penetration with an APFSDS-T

- SECONDARY EFFECTS
- Severe structural damage
- Lethal fragments scattered
- Dust cloud & Reduced Visibility



30x173 APFSDS-T Organization of activities 2001



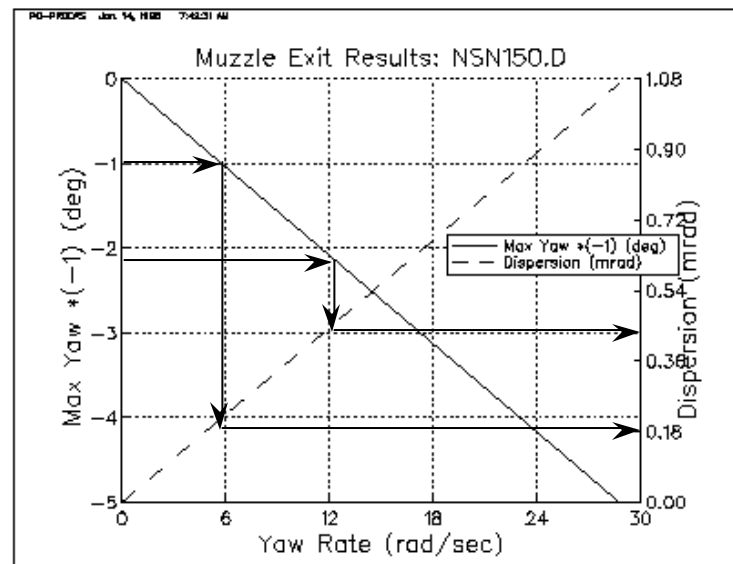
Supplier Selection Criteria for the User

<i>Modern Ammunition</i>	<i>IM Performance</i>	<i>NATO standardized Ammunition family</i>	<i>Fits the engagement scenario for MOUT</i>
<i>New Technologies Integration</i>	<i>EI Propellant</i>	<i>Hydrocode analysis for maximum performance</i>	<i>CFD-analysis for superior exterior dynamics</i>
<i>A Heritage and commitment for the future in medium caliber</i>	<i>The Multipurpose Concept</i>	<i>In service ammunition with Air Force, Navy & Army</i>	<i>Integrated Process & Production Development</i>
<i>Competitive in cost for performance</i>	<i>30mm stored kills outperform 35 & 40mm</i>	<i>Low Lifecycle Cost</i>	<i>All current target scenarios defeated</i>

Optimization

Approach!

Dispersion due to Initial Yaw-Condition

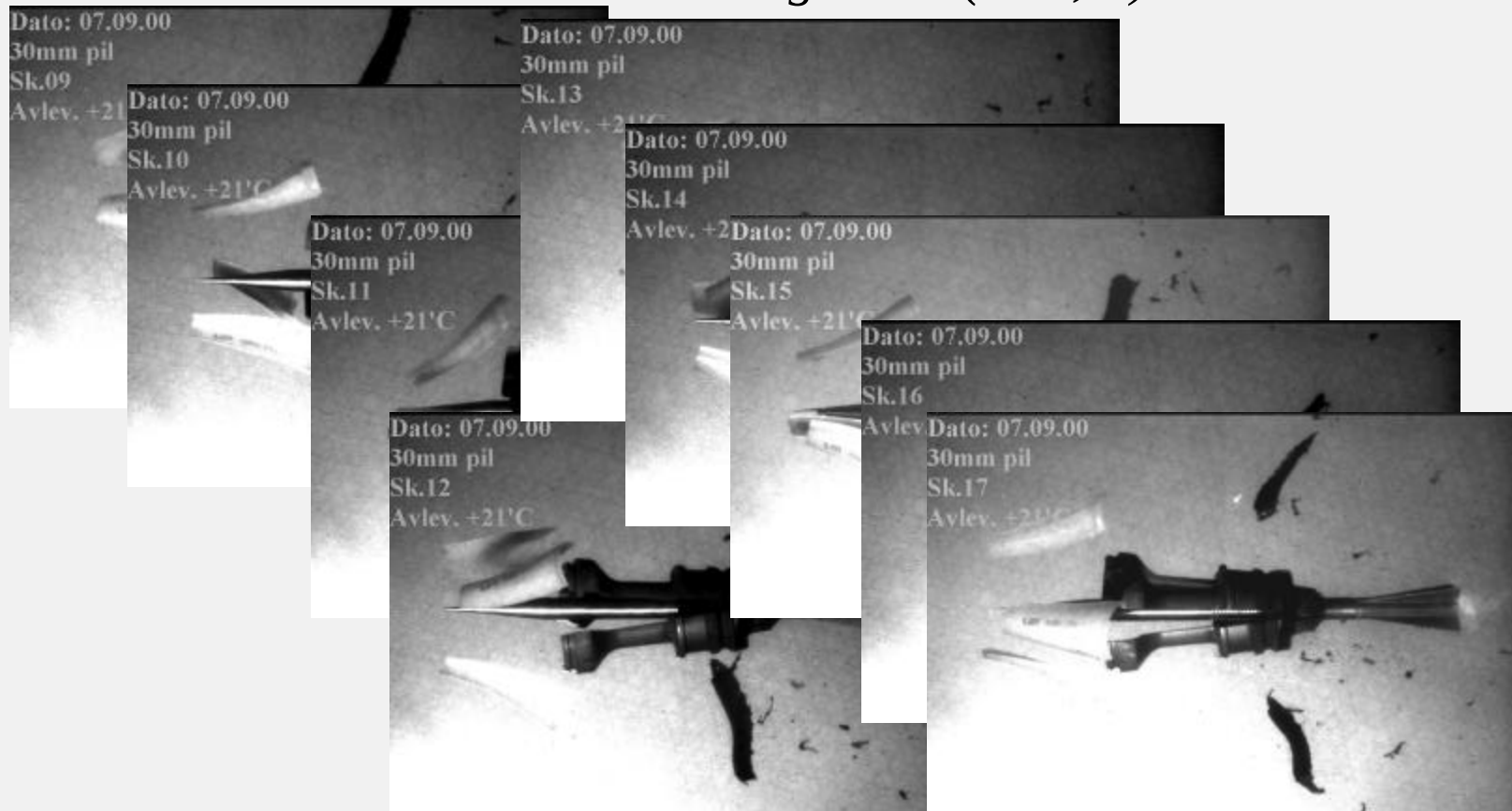


Muzzle Velocity = 1410.(m/sec) Mach Number =4.142

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F1 for Plot Menu

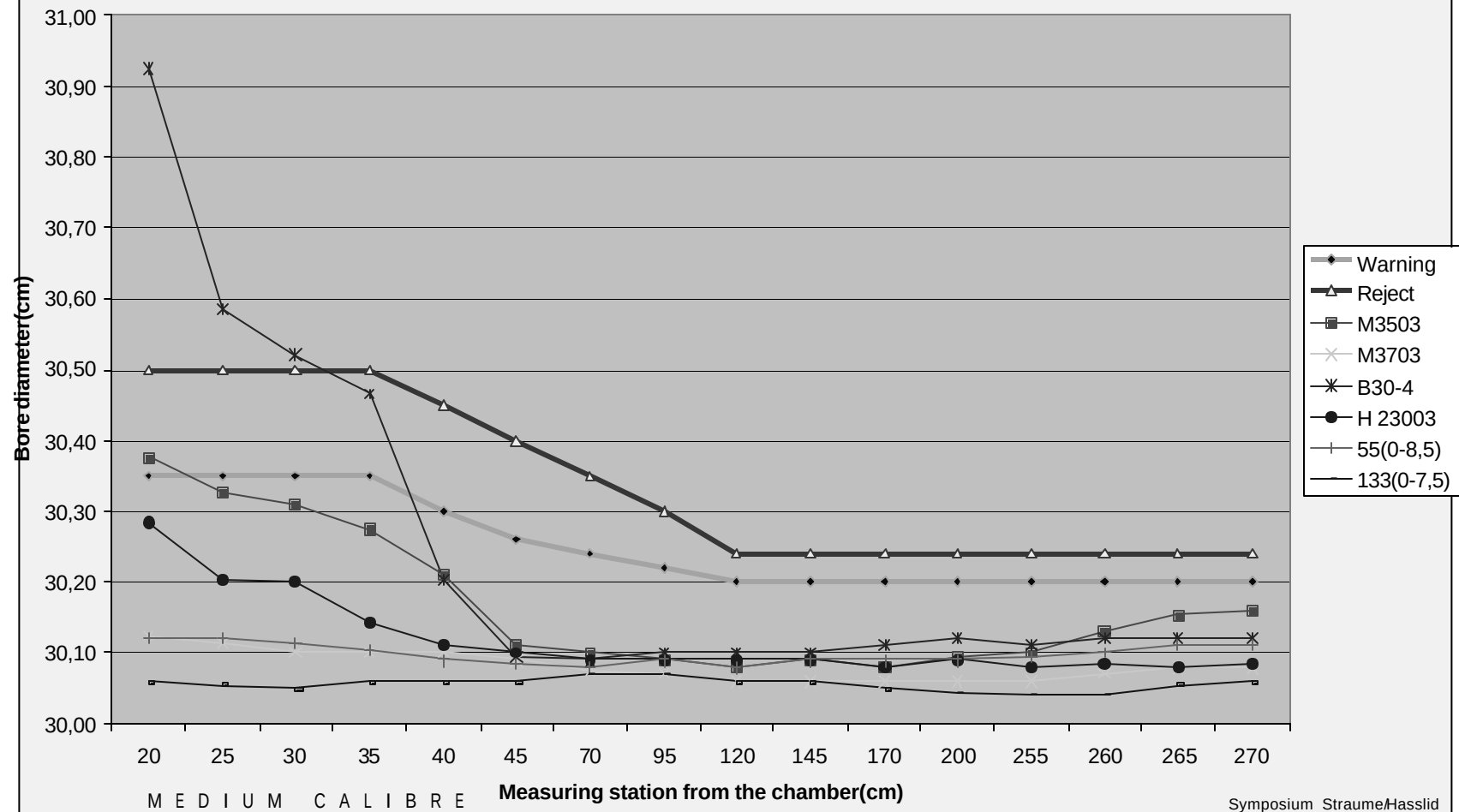
Objective #1

Bushmaster II integration (0'-8,5')



Barrel Interface Study

30x173 Barrel Interface Study



DISPERSION RESULTS

Barrel	Dispersion (1SD)	
	Sx	Sy
	(mils)	(mils)
Mauser Mann	0,15	0,15
Bush II Mann	0,20	0,20
Bush II Auto s.s.	0,35	0,35
Bush II Auto burst	0,45	0,45

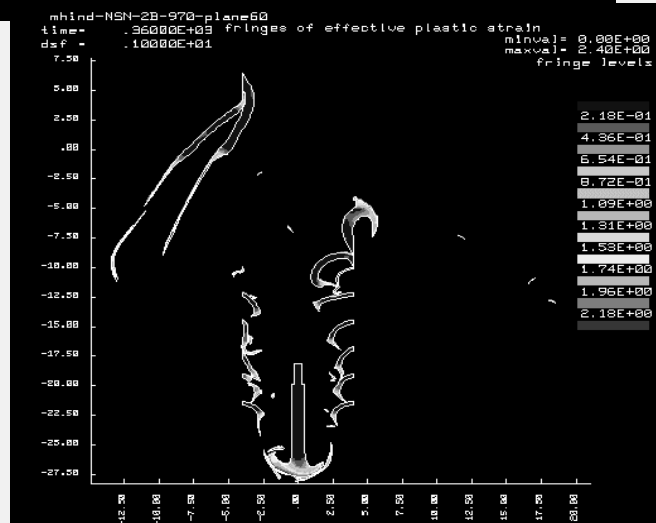
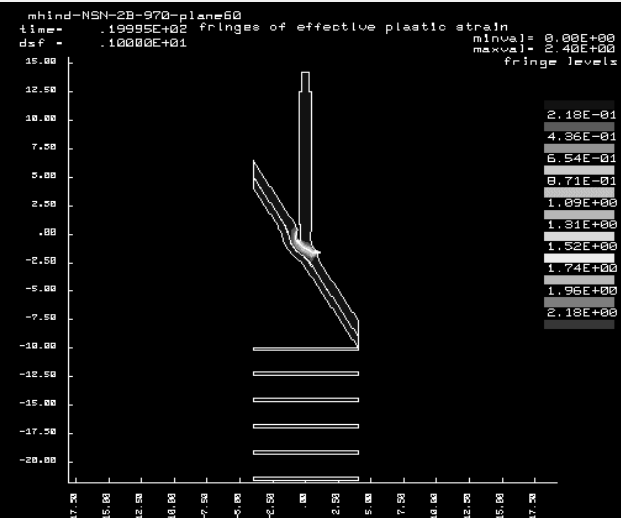
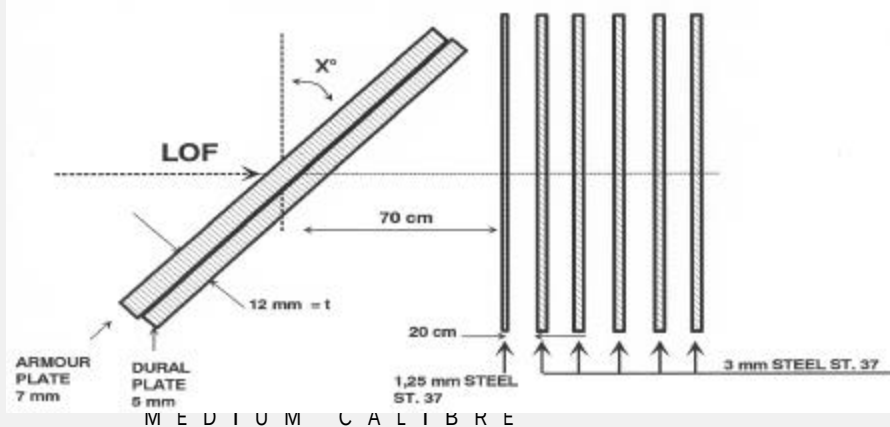
Expanding the Traditional Effectiveness Window

APFSDS-T $\Rightarrow$ MRP

Multi Role Penetrator

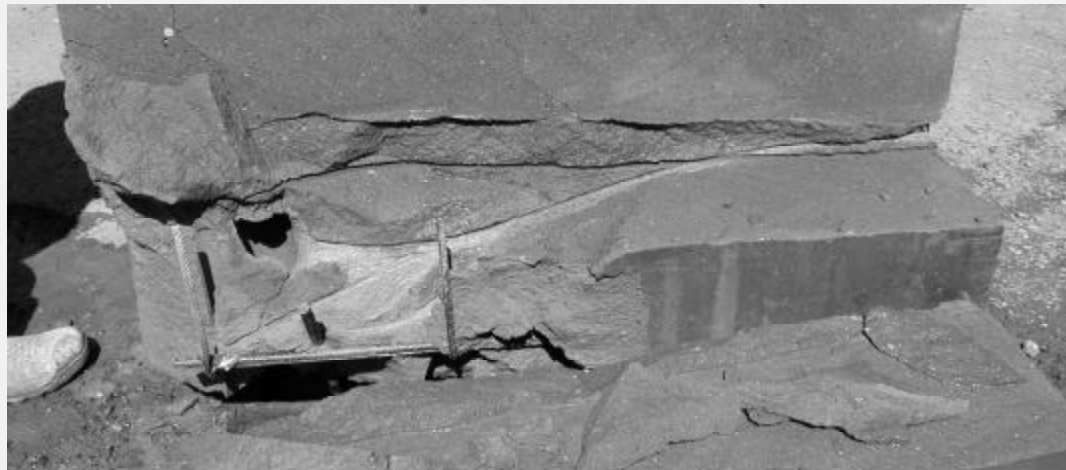


TACTICAL TARGET



Urban/Bunker Targets (600x600x1200)

Projectile
Break-Up



Target 1
Entrance

Full
Penetration
(+15mm RHA)



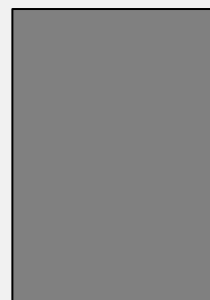
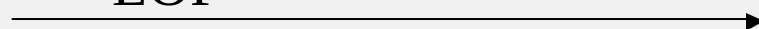
Target 2
Entrance

30x173 APFSDS-T NM 225

- **5 rds burst from the Bushmaster II mod 1 (chromed 0-7,5 deg)**
- **Reinforced Concrete block 1500x1500x300(5ftx5ftx1ft)**
- **Strength C55; Double matrix 12,7mm re-bar; Grain<8mm**
- **10,6mm ARMOX MIL-A-12560 with hardness HB 367**
- **3mm Steel witness plate of size 2000x2000 approx.**

LOF

V0=1430m/s



305mm
127m



10,6mm
128,5m



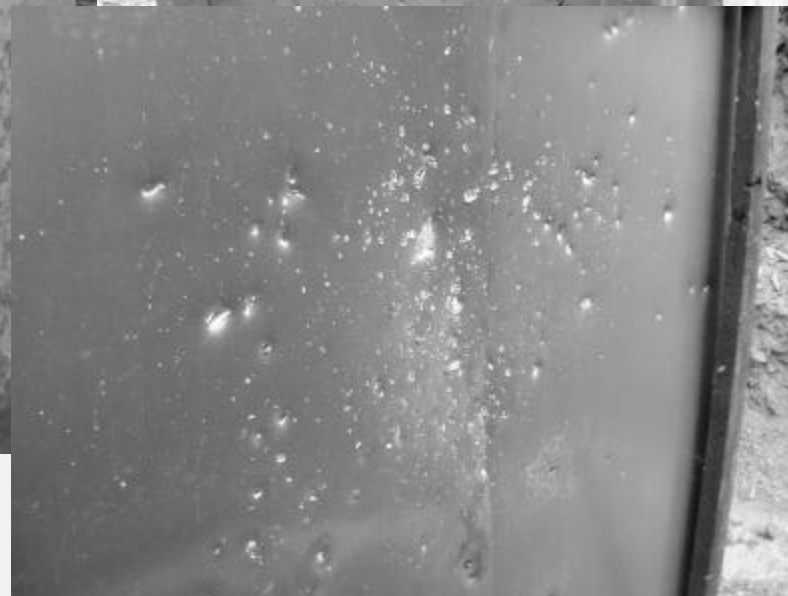
3mm
129,5m

Urban Combo Target Set-Up



M E D I U M C A L I B R E

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M E D I U M C A L I B R E

Expanding the Traditional Effectiveness Window

MP-T/SD==→ ABMP-T

Air Burst Multi Purpose

3 Modus

Programmable time based fuze

Point Detonation

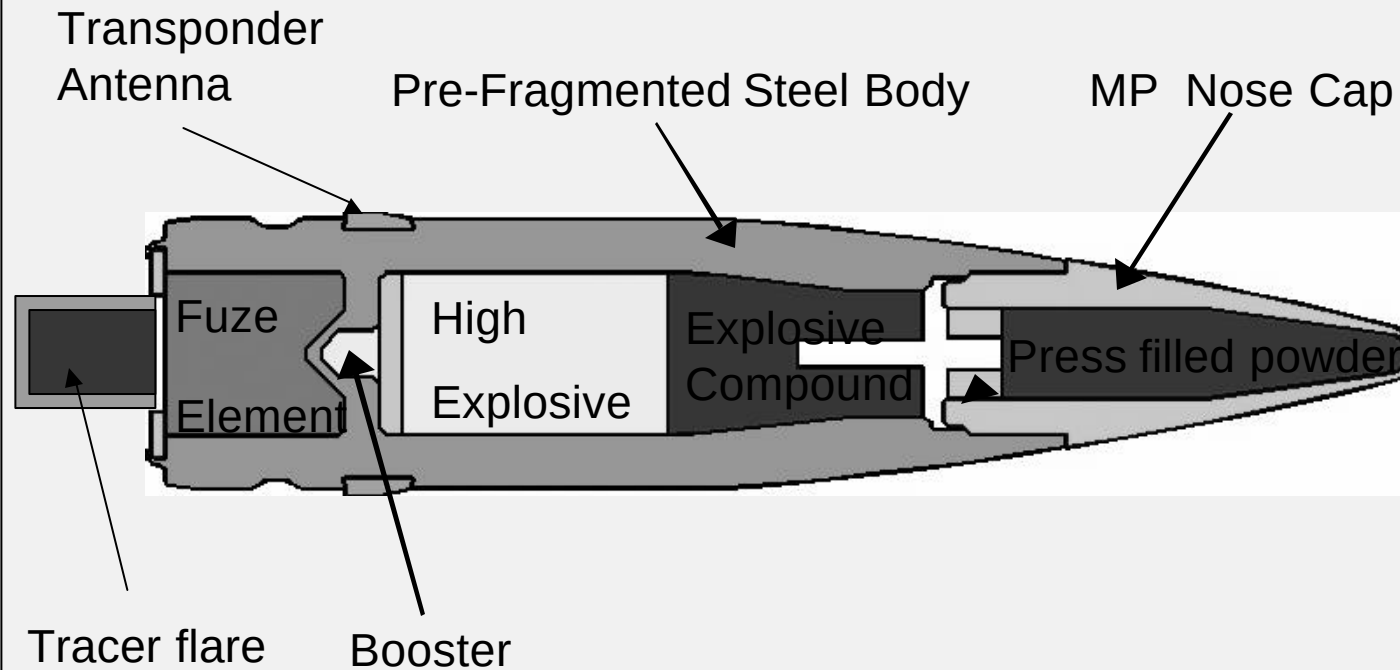
Multi Purpose

-Detonation

-Detonation

-Deflagration

ABMP-T Ammunition Concept



SUMMARY

- **Qualified ammunition defeats current targets as defined in performance spec.**
- **Effectiveness window expanded:**
 - **Urban Targets**
 - **Submerged Targets**
 - **Targets defeated at longer stand-off**
- **> Reduced System Cost and Product LCC**

Mr. Short Rod & Mr. Long Rod at New Frontiers



M E D I U M C A L I B R E

The Parrot Rifle, Fredericksburg, VA

Symposium Straume/Hasslid