IDIA 2002 International Infantry & Joint Services Small Arms Systems
ection Symposium, Atlantic City, NJ - May 13-16, 2002

OERLIKON CONTRAVES

30mm x 173 Ammunition Family

Allan Buckley* & Pierre H. Freymond
Oerlikon Contraves Pyrotec AG
CH-8050 Zurich / Switzerland
ocp-marketing@ocag.ch

 P2 16146 BB, P-VP/FD/22, © 2002 Oerlikon Contraves Pyrotec AG, Zürich/Switzerland

OERLIKON CONTRAVES

hreat Spectrum

0 mm x 173 Ammunition Family

APFSDS-T

FAPIDS-T

TPFDS-T

ABM

Notice: SAPHEI-T, TP-T and TP rounds also available

OERLIKON CONTRAVES

Major Technologies Involved

Subcaliber: Tungsten Material (Long Rod, Frangible)

Sabot (Plastic Injection Molding)

Full Spin Firing (Long Rod)

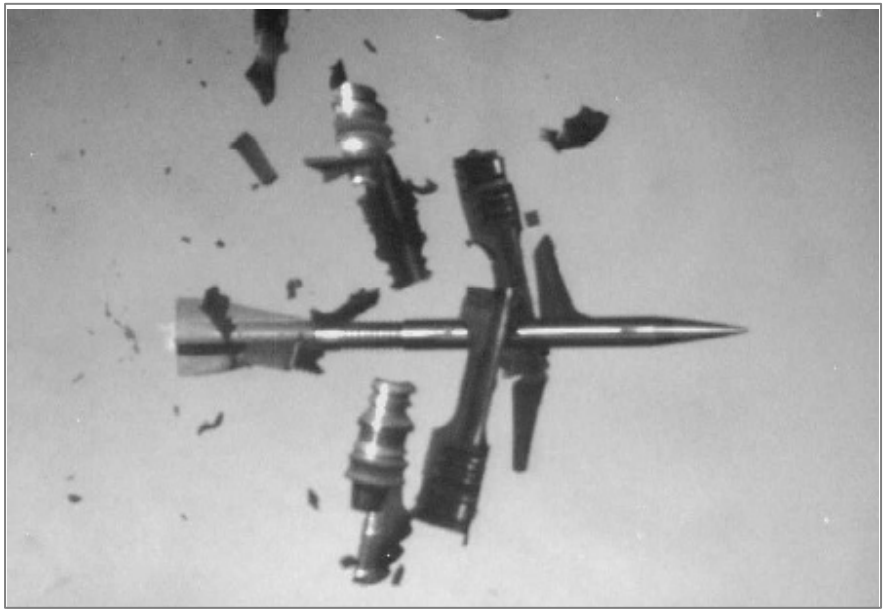
ABM: Programmable Fuze

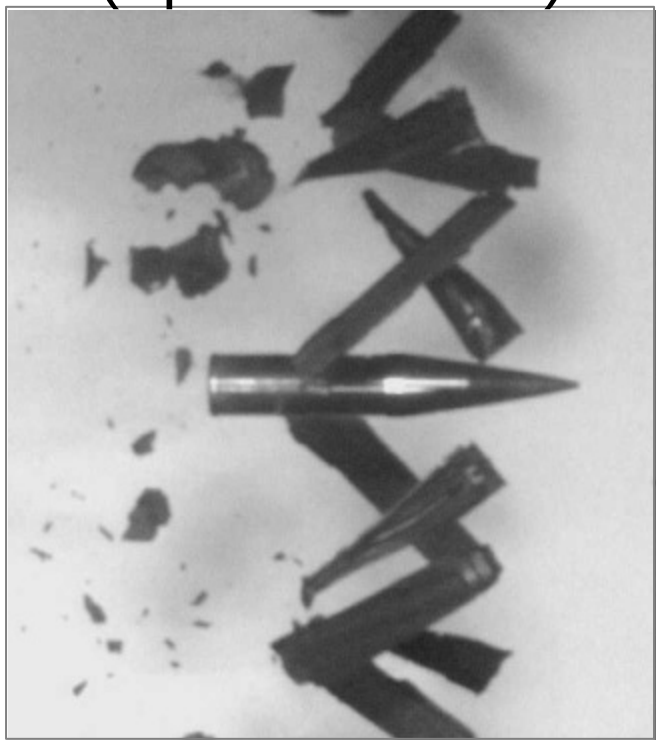
Payload (W-Subprojectile)

ubcaliber Technology:
abot Discarding at Full Spin

Long Rod
(Fin Stabilized)

Frangible
(Spin Stabilized)

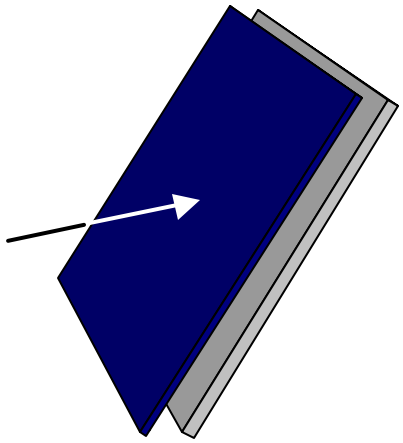




0mm x 173 Long Rod (APFSDS-T)
fficacy on Armoured Vehicle APC/IFV

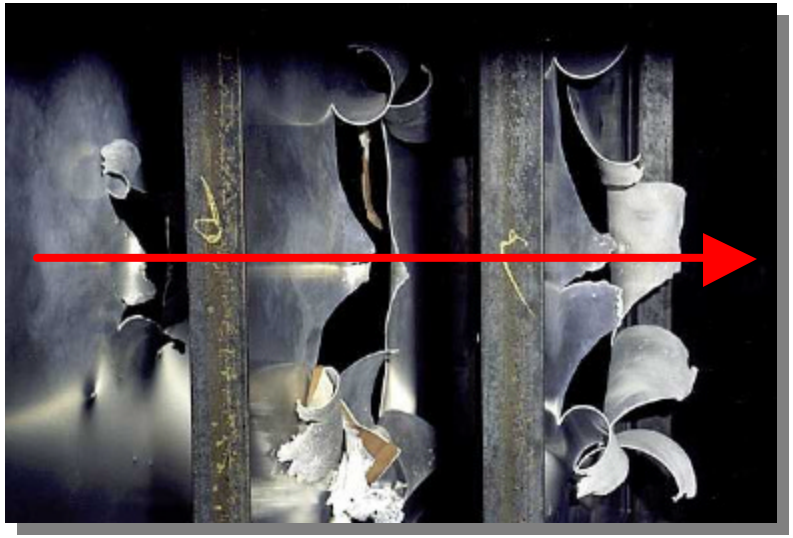
Spaced Armour:
15 mm HHA
30 mm RHA

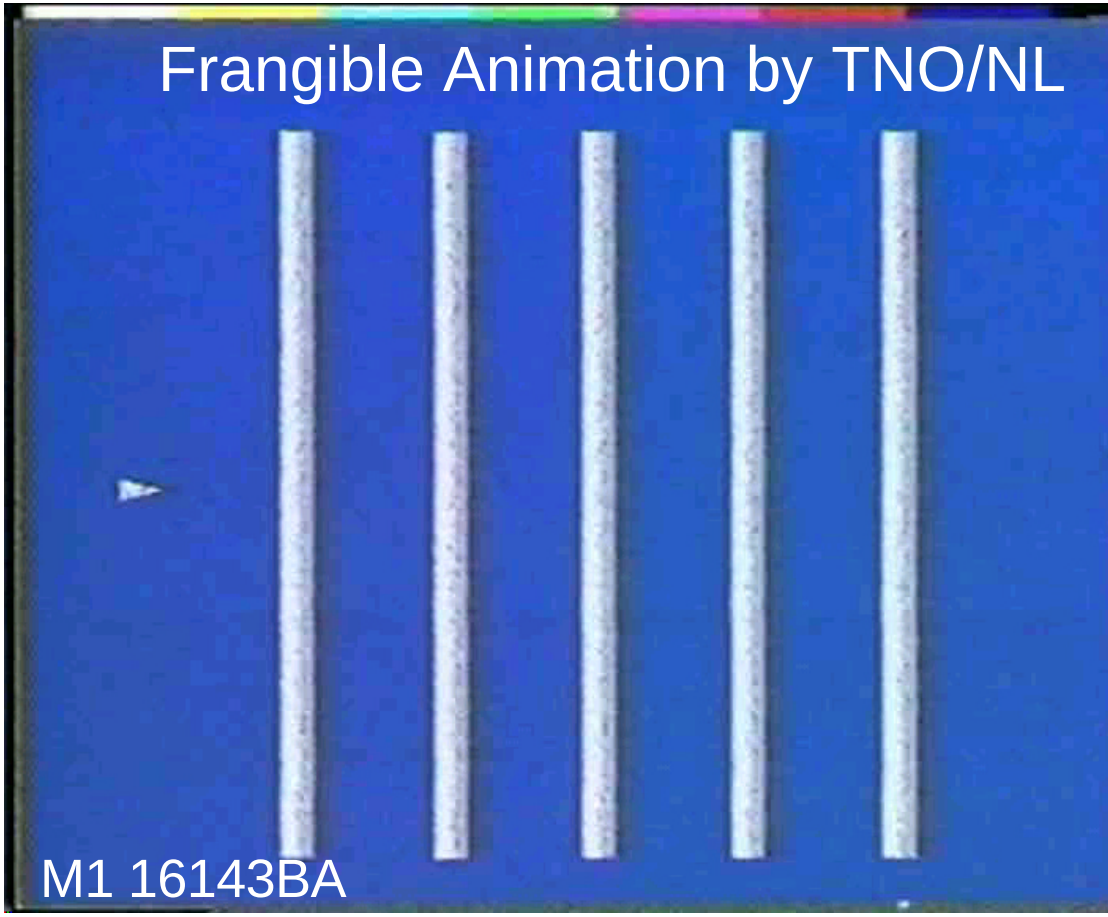
Obliquity: 45°
Range: 2 km



OERLIKON CONTRAVES

rangible Effect





APDS Ammunition
ffectiveness against Helicopter

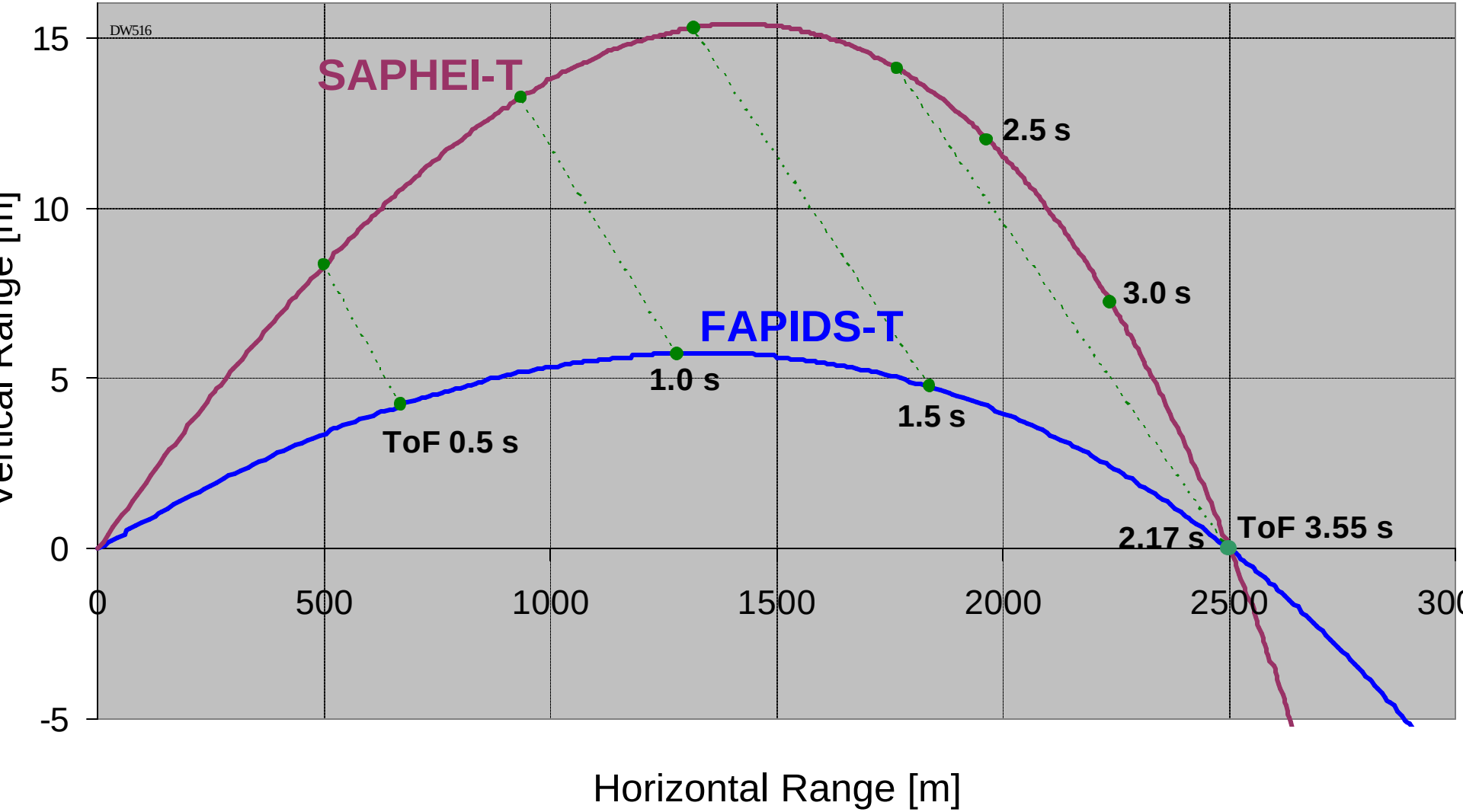
OERLIKON CONTRAVES

Firing Video

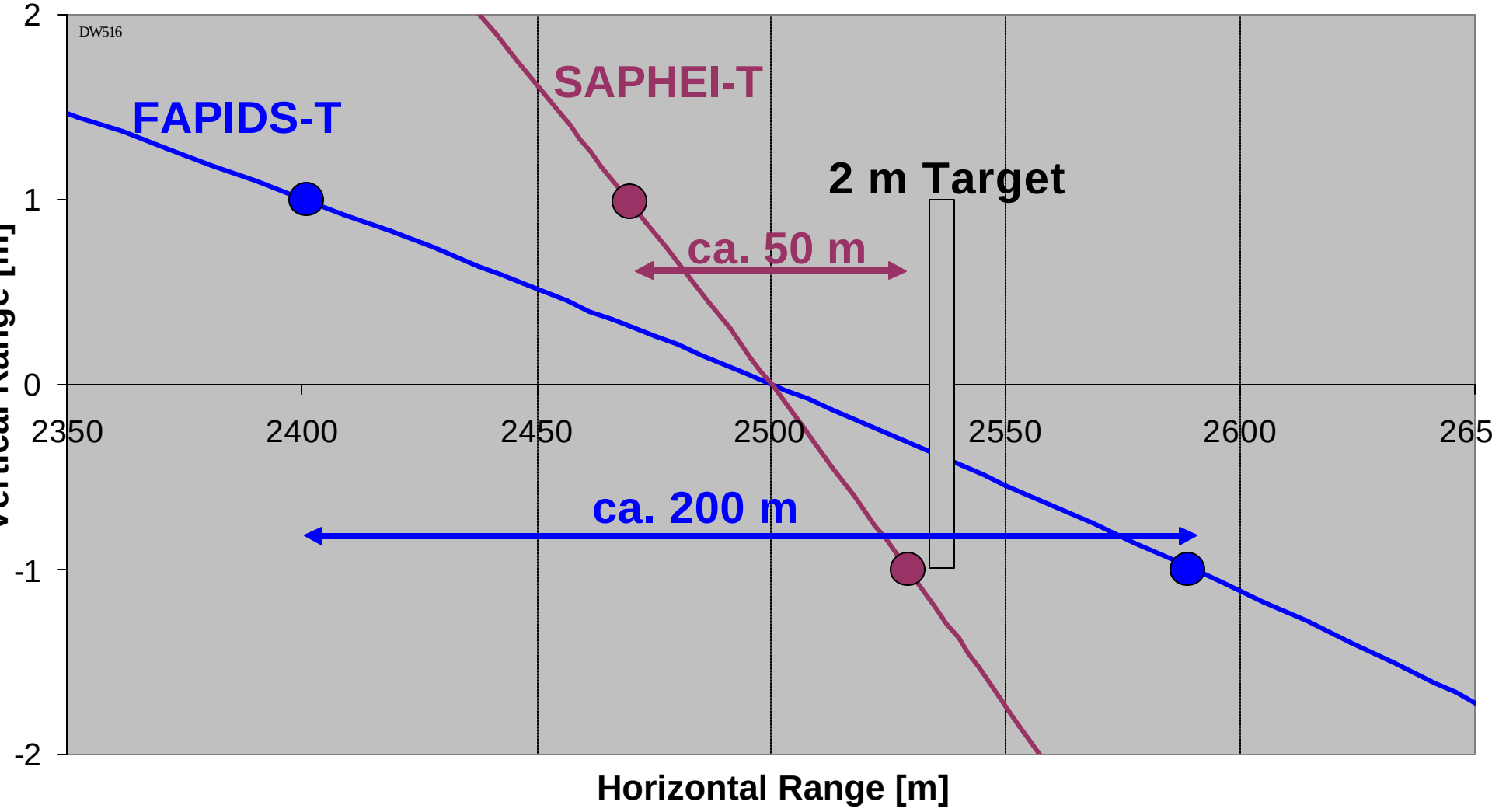
Target after Firing

3 Round Burst at 1200 m Range

0mm x 173 Ammunition
rajectory Comparison



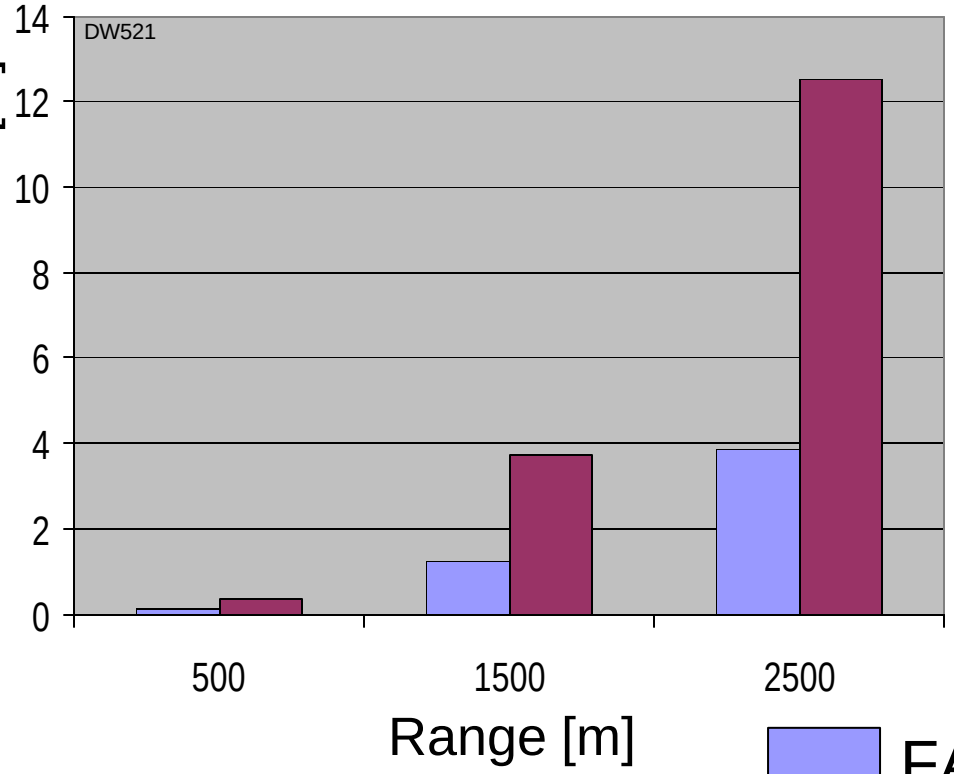
0mm x 173 Ammunition
ight Range Comparison at 2.5 km Range



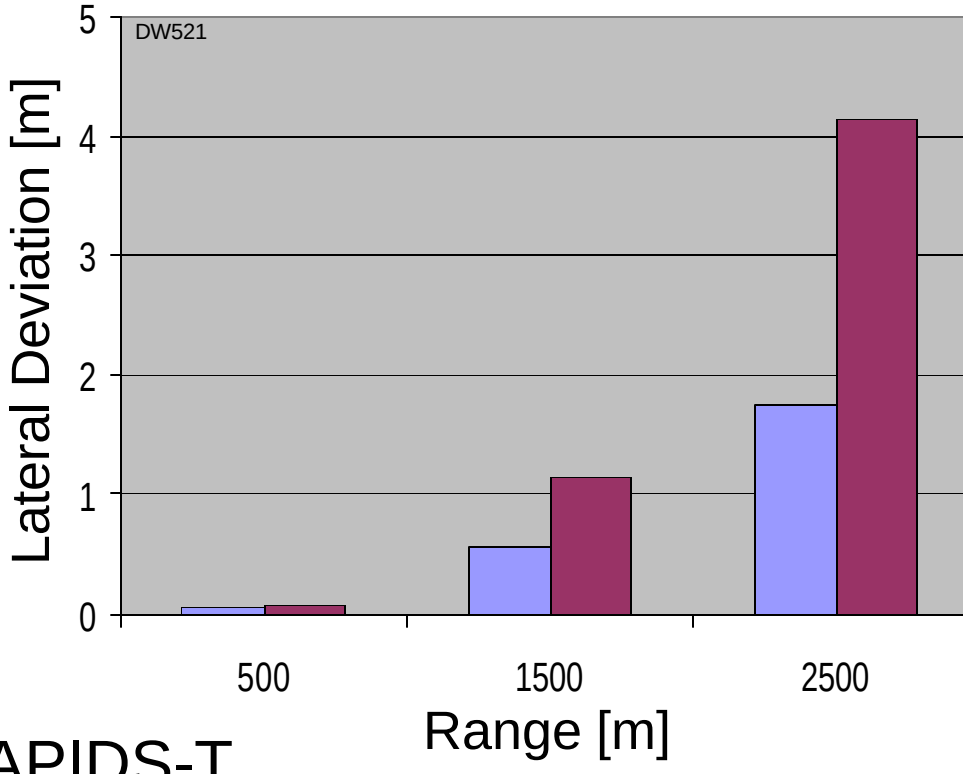
0mm x 173 Ammunition
arameter Influence on Ballistics

OERLIKON CONTRAVES

10m/s Cross Wind



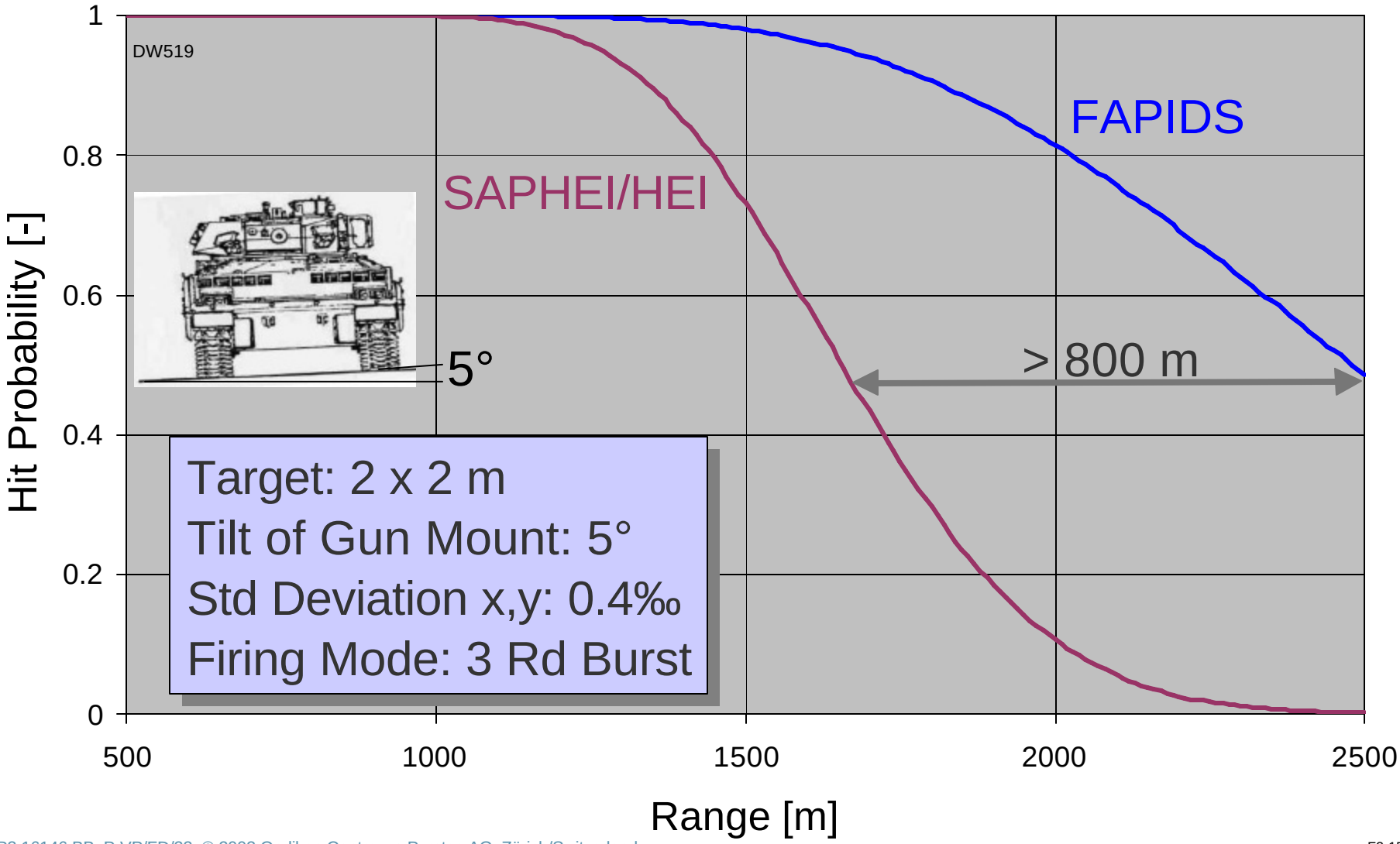
5° Side Tilt of Gun Mount



FAPIDS-T

SAPHEI-T/HEI-T

0mm x 173 FAPIDS vs SAPHEI/HEI
lit Probability vs Range



mmo 25 mm x 137: Effectiveness
omparison against Urban Target

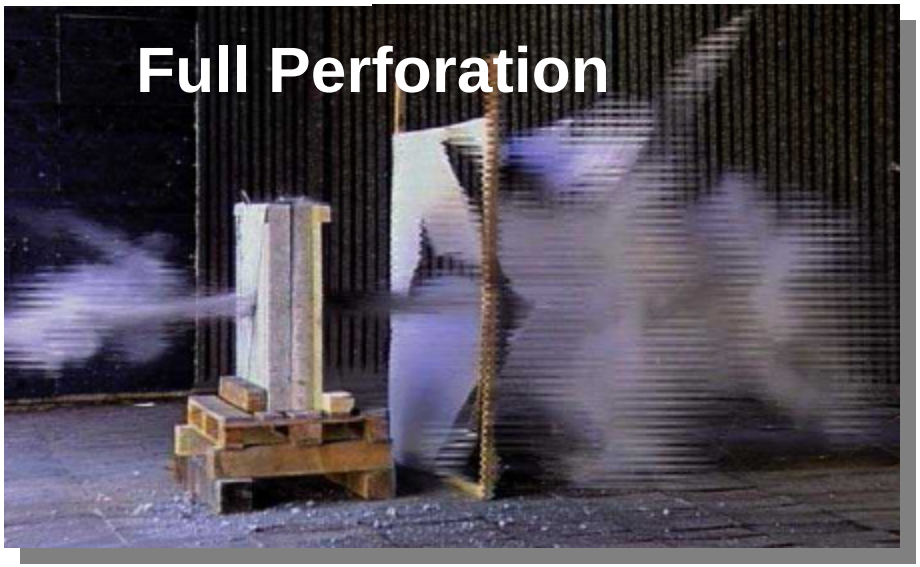
OERLIKON CONTRAVES

HEI-T

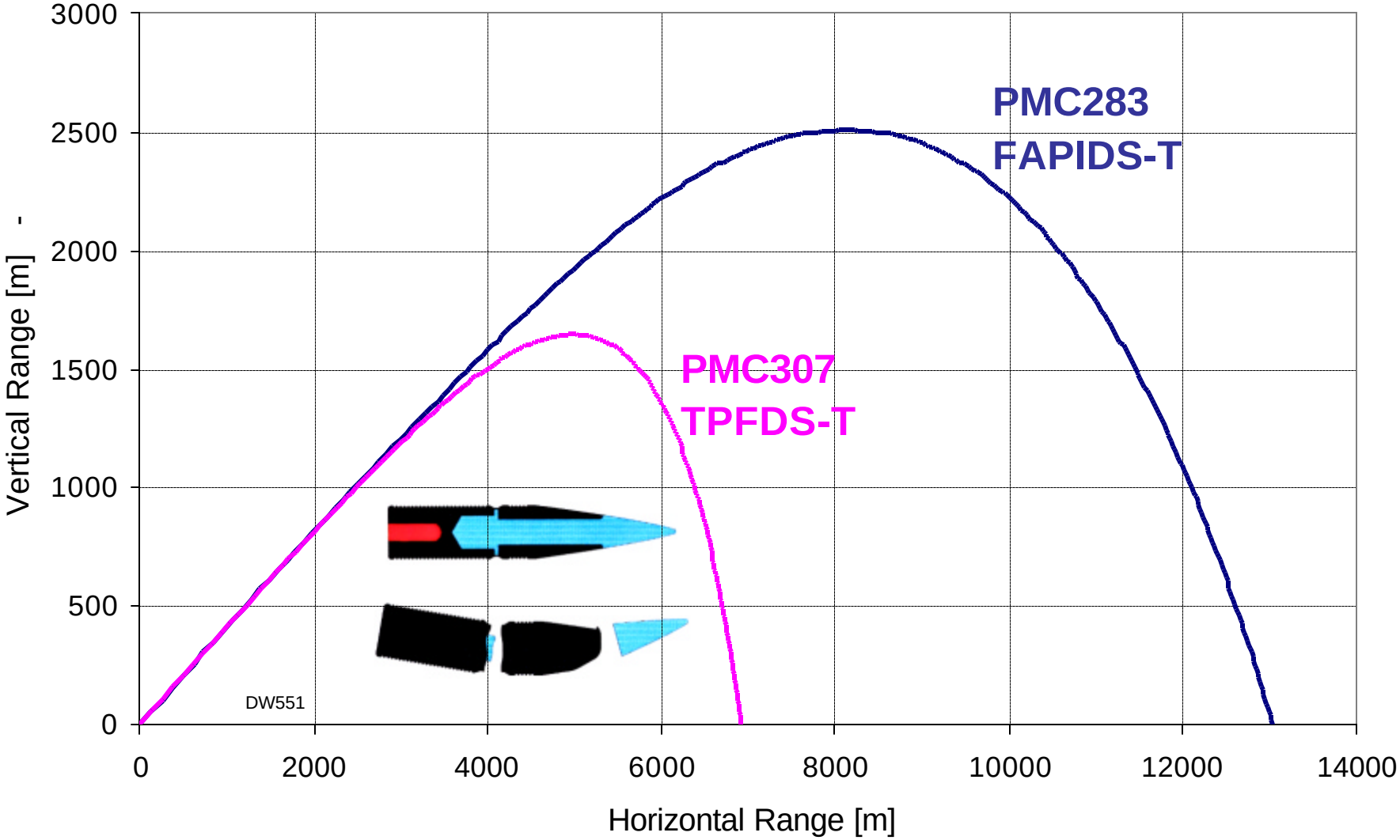
SAPHEI-T

Target: 20 cm (2 x 10 cm) Concrete Wall with double steel-structure reinforcement at a range of 1500 m

FAPDS-T



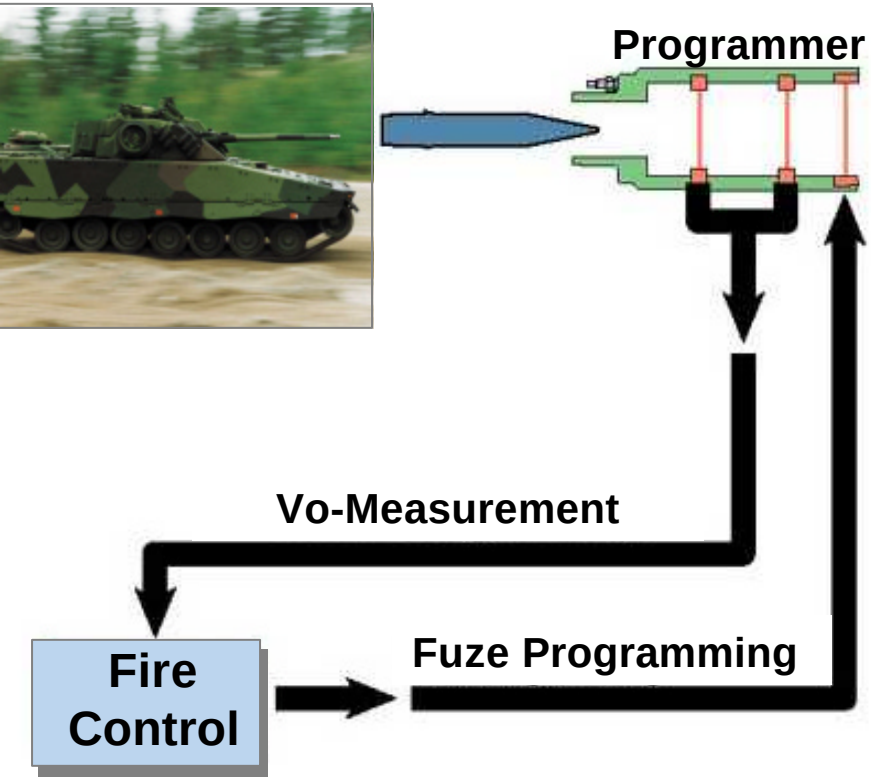
allistic Comparison
raining TPFDS-T vs Frangible FAPIDS-T Rd

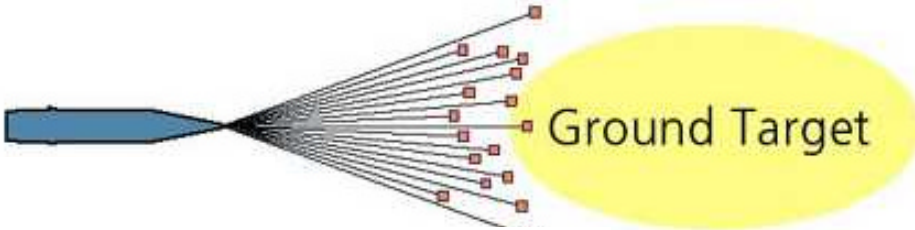


OERLIKON CONTRAVES

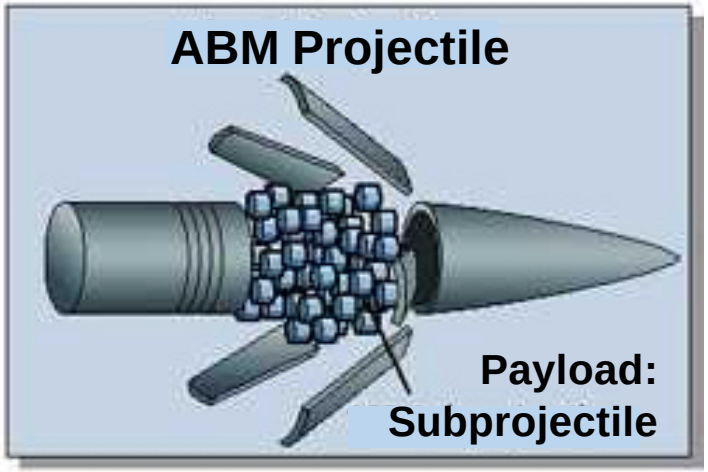
ir Bursting Munition Technology

BM for Infantry Vehicles





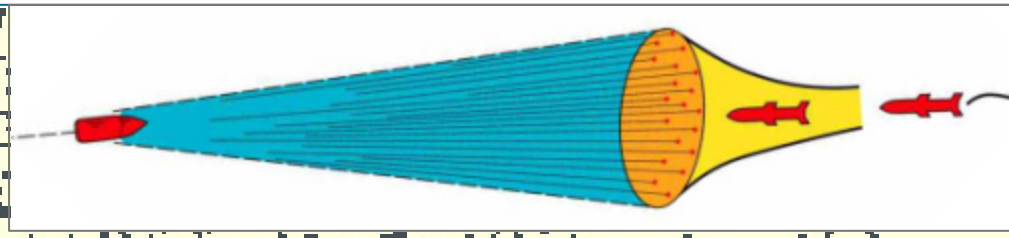
Payload Ejection



OERLIKON CONTRAVES

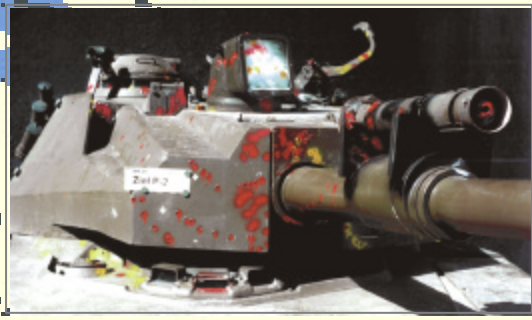
Air Bursting Munition Performances

Aircraft



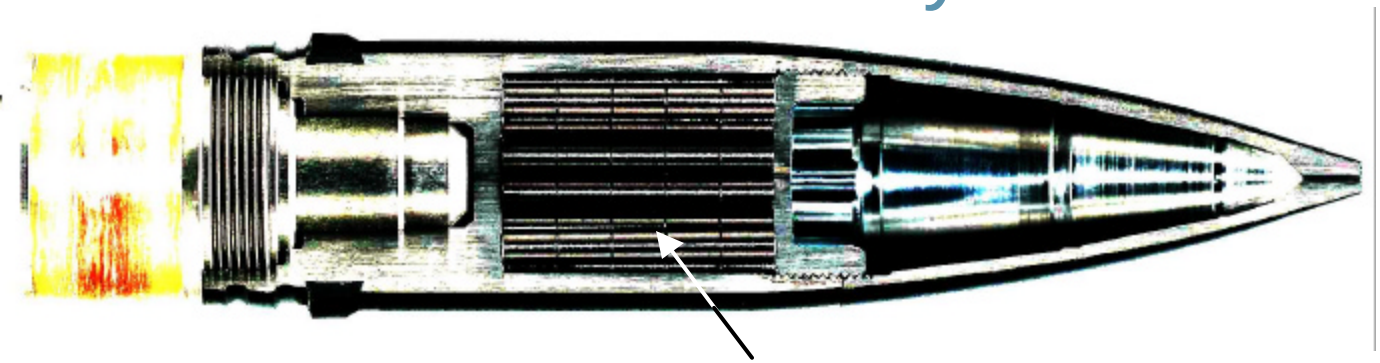
Missiles

Soft Targets



Tanks

One ABM Fuze System (Ahead) - Two Different Warhead Systems



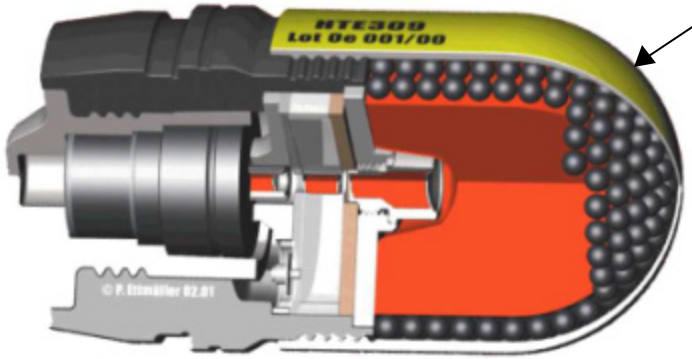
30mm x 173

(35mm x 228)

Subprojectile Warhead
(KETF: Kinetic Energy Time Fuze)

Fuze

Blast Fragmentation Warhead
(HETF: High Explosive Time Fuze)



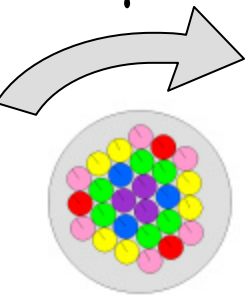
Scale:

40mm x 53

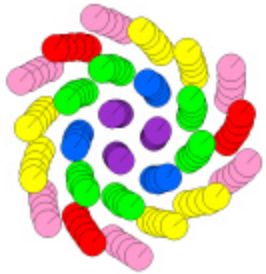
30 mm ABM Subprojectile Payload Ejection Dynamics

35 Subprojectiles at 1.5 g
approx. 200 g Payload

0 µs

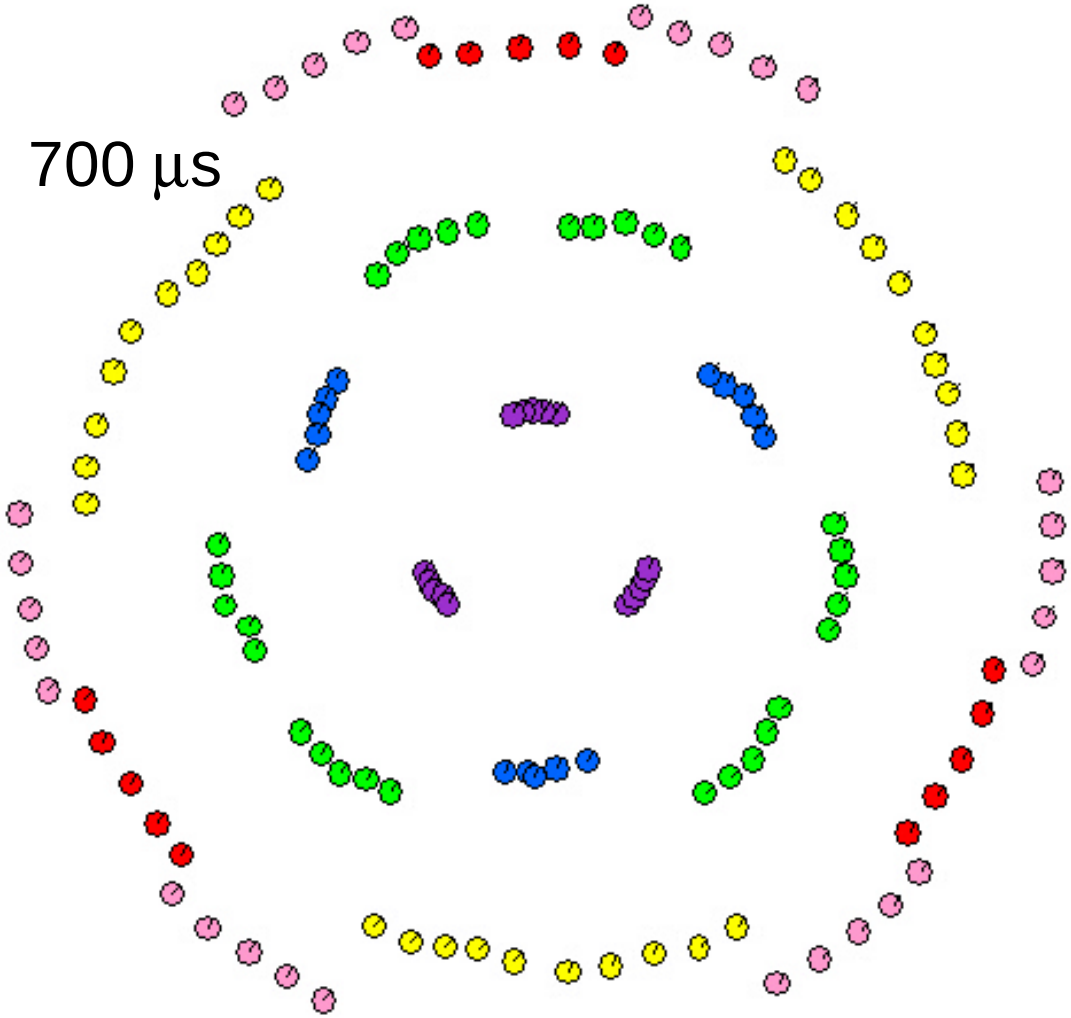


125 µs



27 x 5 Layers

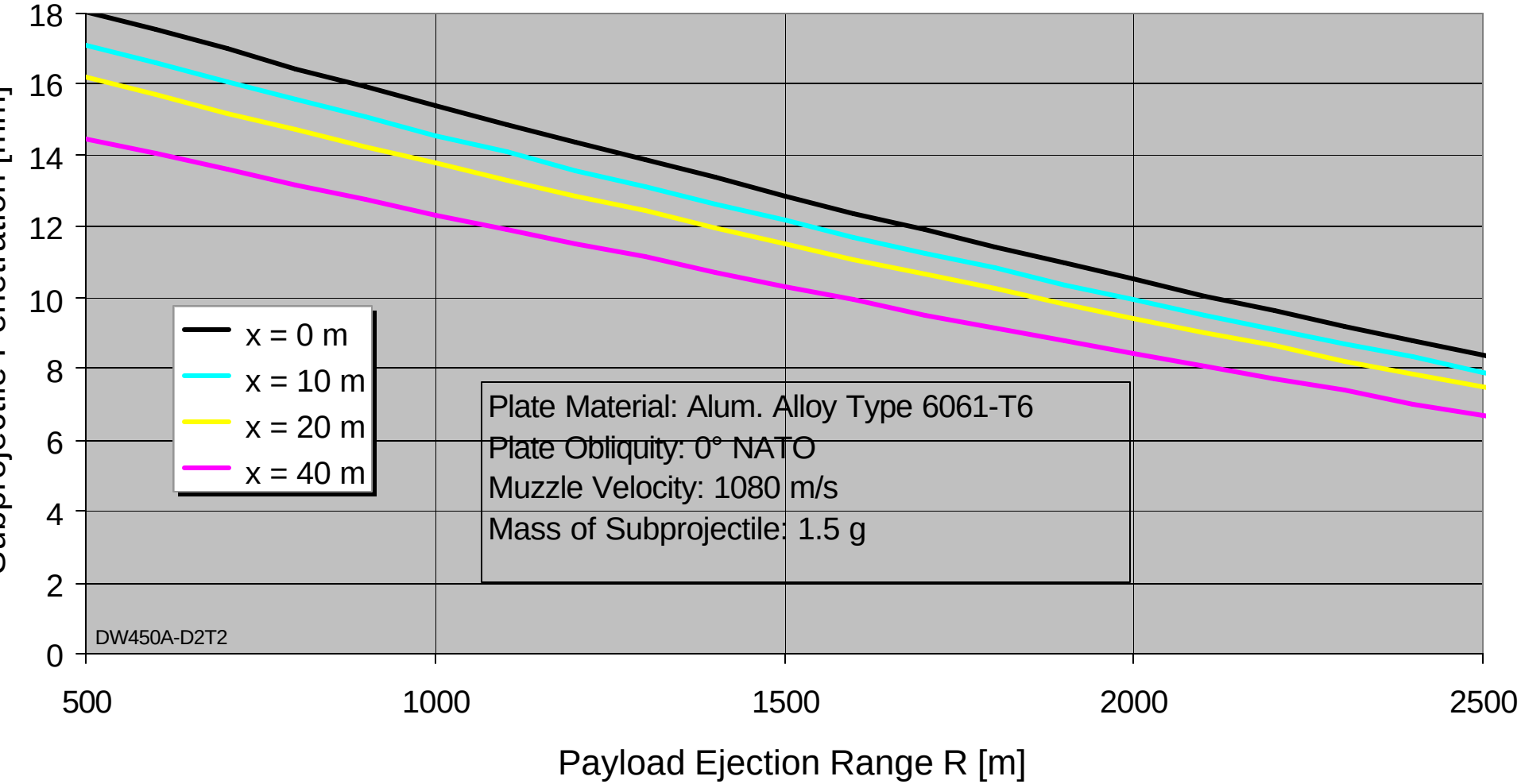
700 µs



OERLIKON CONTRAVES

BM Subprojectile Penetration

Parameters: Subprojectile Ejection Range R & Ejection Distance x



BM 30 mm x 173
ffectiveness against ATGW-Bunker at 1 km

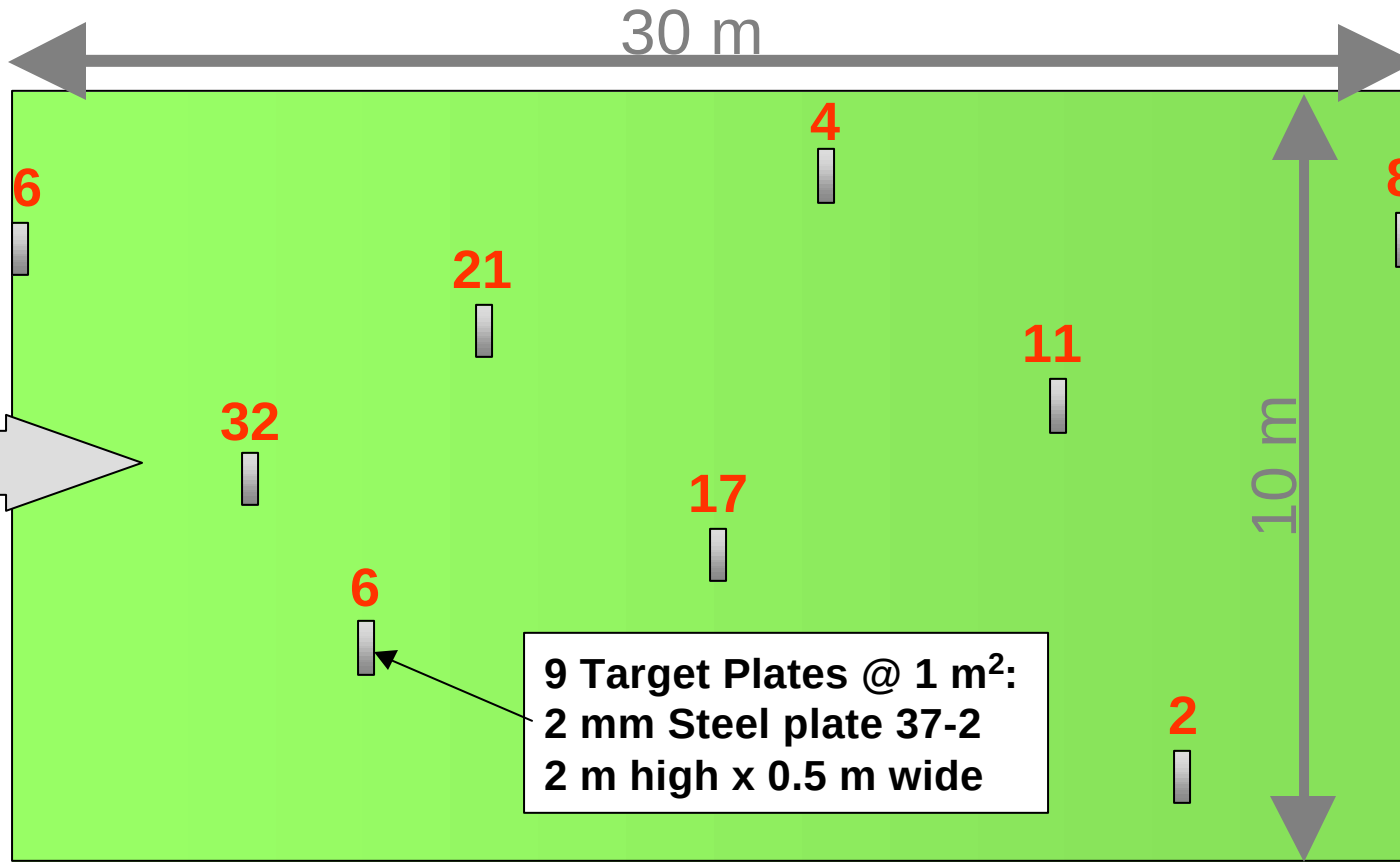
OERLIKON CONTRAVES

ABM KETF 30mm x 173 against Squad of 9 at 1.2 km Range

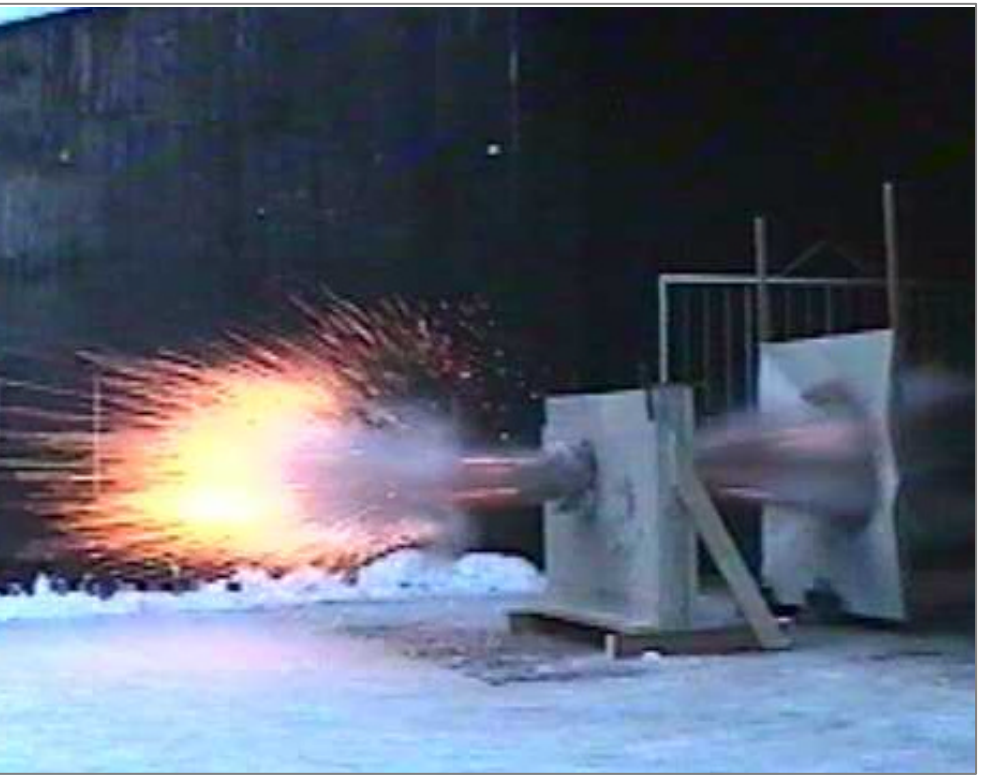
OERLIKON CONTRAVES

4 Rds @ 135 Subprojectiles = 540 SP

Total: 107 Plate Perforations (~ 20%)



BM KETF 30mm x 173 against rban Target (Unprogrammed Fuze)

OERLIKON CONTRAVES

arget: 20 cm Concrete Wall with double Steel-Structure Reinforced
esults: Target Fully Penetrated