

# NATO Infantry Weapons Standardization



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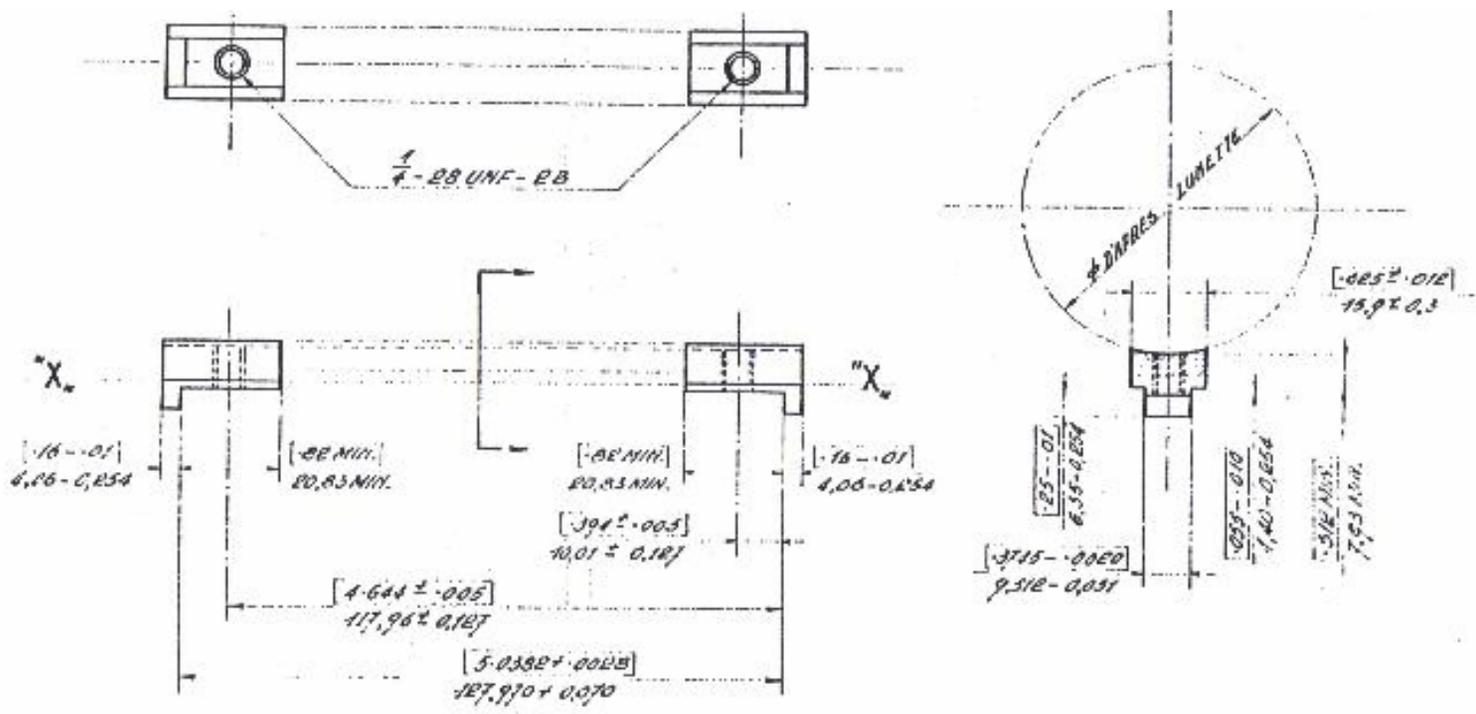


# Future NATO small arms?





# The first NATO infantry weapons STANAG



STANAG 2324 on "Rules governing the interchangeability of securing and holding devices for infra-red scopes on carbines, rifles and light machine guns" from 1961, cancelled in 1979.

# History of 5.56 NATO

- In 1970 NATO decided to try to standardize a common rifle and a second caliber to 7.62mm.
- During 1976-1979 they therefore performed mutual tests with rifles and ammunition in West Germany and Canada.
- The calibers tested were:
  - 5.56mm rounds with increased penetration from USA and BEL.
  - GBR 4.85mm round.
  - DEU 4.7mm caseless round.





# NATO rifle and ammunition trials 1976-1979



| Country                 | Weapon           | Caliber (mm) | Ammunition                           |
|-------------------------|------------------|--------------|--------------------------------------|
| Germany                 | G11              | 4.7          | 4.7 caseless                         |
| United Kingdom          | 4.85 IW          | 4.85         | 4.85                                 |
| Belgium                 | FNC              | 5.56         | SS109                                |
| Netherlands             | MN 1 (Stoner 63) | 5.56         | M193                                 |
| United States           | M16A1            | 5.56         | XM777                                |
| France                  | FAMAS            | 5.56         | F1 brass and steel cased (M193 type) |
| United States (control) | M16A1            | 5.56         | M193                                 |
| Germany (control)       | G3               | 7.62         | 7.62 NATO                            |

# The results

- No weapon could be agreed upon.
- Some were in their prototype status.
- The BEL SS109 round was found to be the best, and was standardized as NATO's second rifle caliber in 1980.



# Proposed standardization



# There is no NATO rifle!

- During the tests the US M16A1 was a control weapon.
- You can often see reference to:
  - NATO magazine.
  - NATO flash hider.
  - NATO bayonet.
- There is currently no such thing!





# NATO Nominated Weapons

- NNW's are used as reference when new ammunition is standardized.
- As of 2008 the 5.56mm rifles are:
  - FNC, Belgium
  - G36, Germany
  - AR70/90, Italy
  - L85A2, United Kingdom
  - M16A2, USA
- A new NNW must work with all qualified 5.56mm ammunition designs.

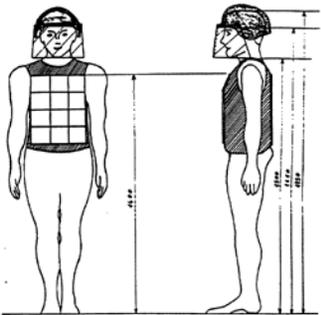


# 5.56mm NATO Ball Qualified Designs

| NATO Design Number | Sponsoring Country | Head Stamp Initials | Publication Date | Manufacturer                             |
|--------------------|--------------------|---------------------|------------------|--|
| AC/225-111A        | USA                | LC                  | 30/06/1987       | GOCO, Lake City, USA                     |
|                    |                    | WCC                 |                  | Olin Winchester USA                      |
|                    |                    | TAA                 |                  | 205th Arsenal, Taiwan                    |
| AC/116-112A        | BEL                | FNB                 | 14/11/1989       | Fabrique Nationale, Belgium              |
| AC/225-113A        | ITA                | SMI                 | 12/04/1990       | Europa Metall, Italy                     |
| AC/225-114A        | GBR                | RG                  | 14/08/1995       | Royal Ordnance, United Kingdom           |
| AC/225-116A        | BEL                | FNB                 | 16/11/1995       | Giat Industrie, France                   |
| AC/225-117A        | NLD                | HP                  | 15/05/1996       | Hirtenberger, Austria                    |
| AC/225-118A        | CAN                | IVI                 | 17/01/1997       | GD-OTS, Canada                           |
| AC/225-120A        | POR                | FNM                 | 31/08/1998       | Indep, Portugal                          |
| AC/225-122A        | ITA                | GFL                 | 11/01/1999       | Fiocchi, Italy                           |
| AC/225-124A        | GBR                | RG                  | 24/02/1999       | Royal Ordnance, United Kingdom           |
| AC/225-125A        | DEU                | DAG                 | 10/03/2000       | RUAG, Germany                            |
|                    |                    | MEN                 |                  | MEN, Germany                             |
| AC/225-126A        | BEL, FRA           | IMI                 | 10/03/2000       | IMI, Israel                              |
| AC/225-127A        | SPA                | SB                  | 26/09/2000       | Santa Barbara, Spain                     |
| AC/225-128A        | NOR                | CG                  | 6/07/2004        | NAMMO, Sweden                            |
| AC/225-130A        | LIT                | GGG                 | 26/05/2005       | GGG, Lithuania                           |
| AC/225-132A        | GBR                | RG                  | 27/01/2006       | BAE Systems Radway Green, United Kingdom |
| AC/225-133A        | GBR                | RG                  | 30/01/2006       | BAE Systems Radway Green, United Kingdom |

# CRISAT

- During the early nineties an extensive work was performed by LG/3 (then named Panel III) called “Program for Collaborative Research Into Small Arms Technology” (CRISAT).
- Seven areas were studied.
- A report was published in 1994.
- The results were used to develop STANAG’s and the D/7 document “Infantry Small Arms Post-2000” (NATO AC/225(LG/3)D/7).



STANAG 4512

Dismounted personnel target

- US: Technology Area 1: Target Definition
- UK: Technology Area 2: Terminal Effects
- FR: Technology Area 3: Target Acquisition
- US: Technology Area 4: Materials
- GE: Technology Area 5: Propellants
- US: Technology Area 8: Power & Electronics Systems
- UK: Technology Area 9: Analysis of Effectiveness

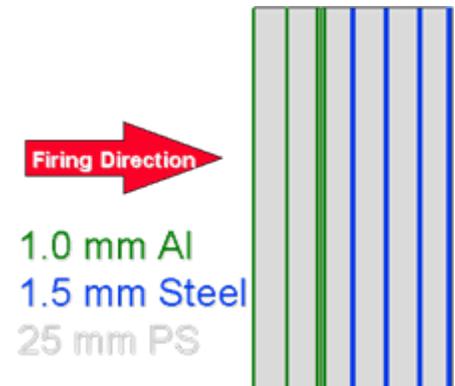
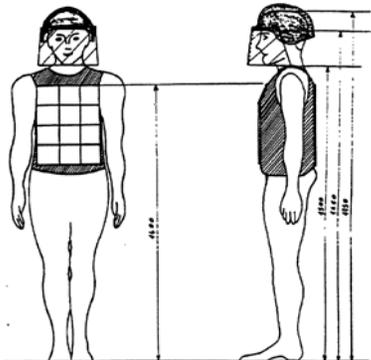


# LCG/1 STANAG's

| <b>STANAG</b> | <b>Title</b>   | <b>Prom. Date</b> |
|---------------|--|-------------------|
| 2310          | Small Arms Ammo. (7.62mm)  | 11-76             |
| 2329          | Links for 7.62mm Ammo (AOP-3)                                    | 04-82             |
| 4090          | Small Arms Ammo. (9mm)   | 04-82             |
| 4172          | Small Arms Ammo (5.56mm)   | 05-93             |
| 4173          | 25mm x 137mm AFV Cannon Ammo                                     | 04-86             |
| 4383          | Small Arms Ammo. (12.7mm)  | 07-01             |
| 4403          | Standard 40mm Grenades - High Velocity                           |                   |
| 4498          | Unarmoured Vehicles, Helicopters & Field Fortification Targets   | 04-04             |
| 4512          | Dismounted Personnel Targets                                     | 04-04             |
| 4513          | Incapacitation & Suppression                                     | 04-04             |
| 4536          | Representative Building Targets                                  | 04-04             |
| 4619          | Electrical connectivity standards for dismounted soldier systems |                   |

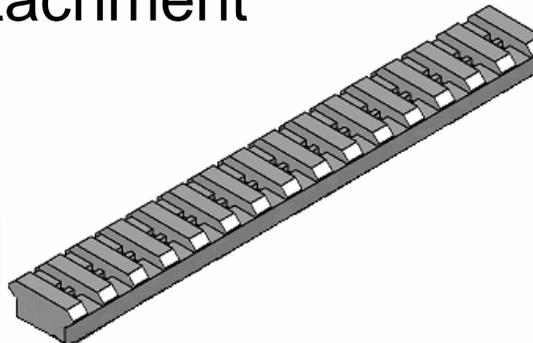
# STANAG 4512 dismounted personnel targets

- A “NATO protected” man is defined, but there is a lack of a “NATO unprotected man”.
- We are going to replaced the cold war Soviet body armor with:
  - Soft body armor.
  - Modern ceramic body armor.
- We will also standardize a witness pack for fragments. It will be based on the GBR BAE.



# New proposed standardizations

- Up until now all NATO small arms standardization has been ammunition.
- We will now recommend standardization of:
  - NATO Rail
  - NATO Magazines
  - NATO Muzzle Thread
  - NATO Flash Hider Diameter
  - NATO Bayonet Attachment
  - NATO Accessory Attachment



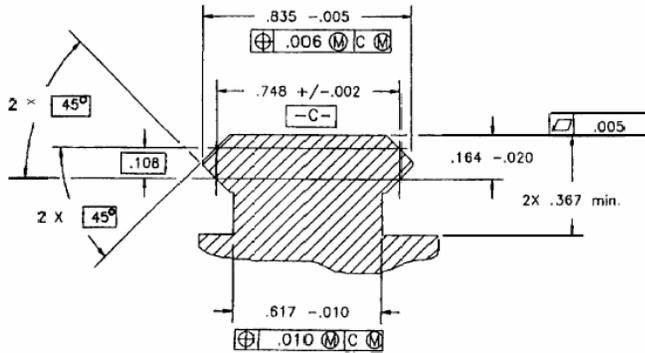
Participating industries:

- Aimpoint
- Beretta
- Colt
- Fabrique National
- Heckler & Koch

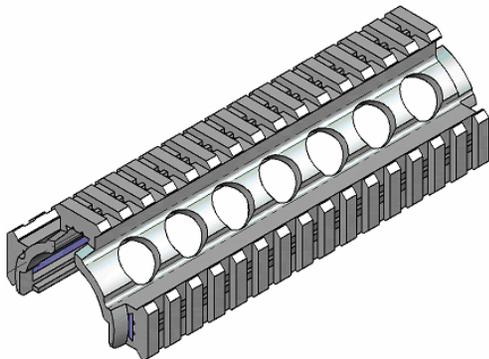
# Weapon rail history



Desert Storm 1991:  
Clamping and duct tape...



1995 US MIL-STD-1913

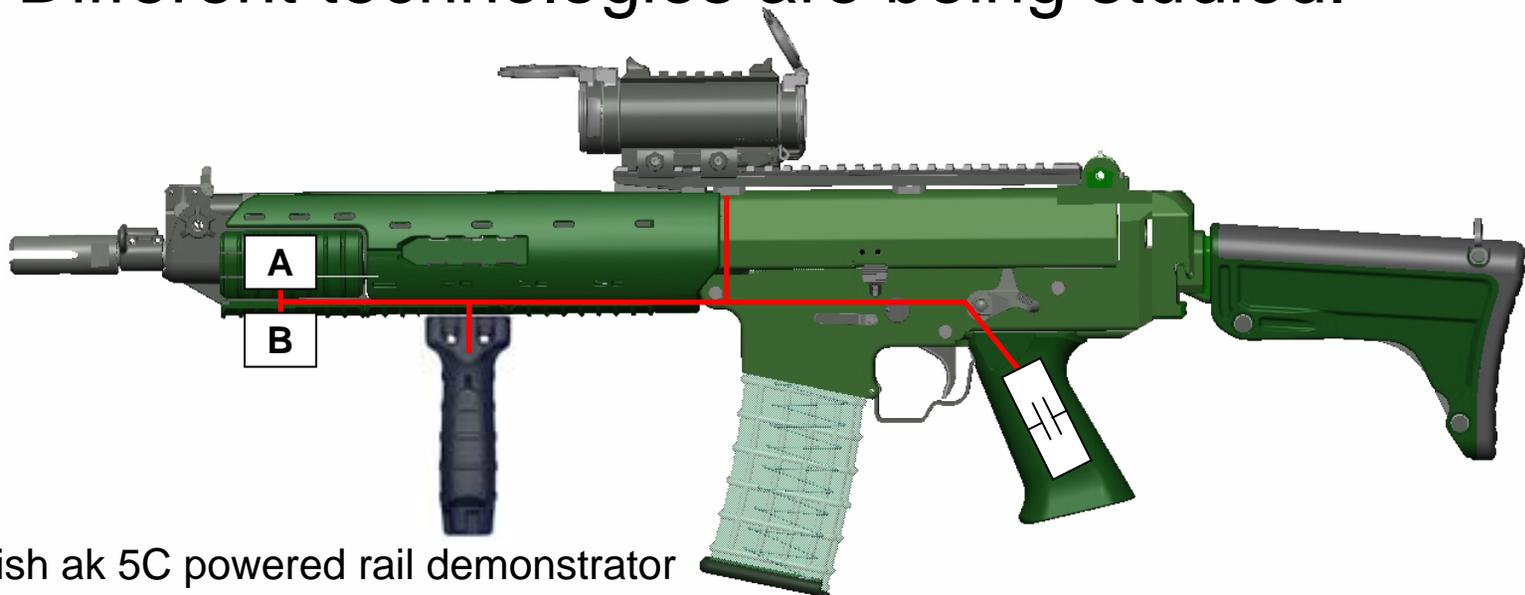


2010 Powered NATO Rail



# The next step is the NATO powered rail

- Centralized power is the key for the future!
- CAN, DEU, SWE and USA have all placed contracts with companies to develop powered rail demonstrators.
- Different technologies are being studied.



Swedish ak 5C powered rail demonstrator

# Questions?

