IR | 7.62
Infrared Tracer
SMALL ARMS AMMUNITION

DIM TRACER (IR)

2010
MAY 19

AMMUNITION

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Nammo

DEVELOPMENT OF
NAMMO IR-Dim Tracer

- Nammo Vanäsverken AB started to study the IR - Dim Tracer concept in the middle of the 90:ies when Night Vision Devices hade become more available.

- The design targets for the 5.56 mm round were;
  - IR-emission near to visible IR (NIR) 0.7-0.8 µm
  - IR trace distance at least 600 meters (>1.5 sek)
  - Full performance in temperatures -54°C to +52°C
  - Reduced muzzle flash/signature
  - Meeting applicable STANAG and MOPI requirements

- In addition;
  - Suitable for mass production with existing equipment
  - Compatible with standard tracer cartridge components and existing tracer ignition composition without shelf life deterioration

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DEVELOPMENT OF
NAMMO IR-Dim Tracer
- COMPOSITION

- **A pyrotechnical solution was the preferred choice to meet the design requirements.**
- **The first concept was based on a Boron/Potassium composition**
  - Emissions of visible light
  - Short IR trace
  - Halo effect in Night Vision Devises

  This type of composition are used in IR flares when you need a lot of IR radiation for illumination of greater areas.

- **The second concept was based on a Oxide/Resin composition**
  - The selected IR composition meet all design requirements and with some improvements exceeded the design requirements in respect to low level of visible emissions and trace distance.

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QUALIFICATION

OF SELECTED IR COMPOSITION

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- **The selected IR-Dim Tracer composition has been thoroughly scrutinised with respect to;**

  - Stability and compatibility with other cartridge components.
  - Electrostatic spark, chock and friction testing.
  - Resulting in the IR composition is considered to be non explosive.
  - Ignition temperature and differential scanning calorimetry
  - 5.56x45 Dim Tracer 4 qualified by US Navy Mod. Mk301

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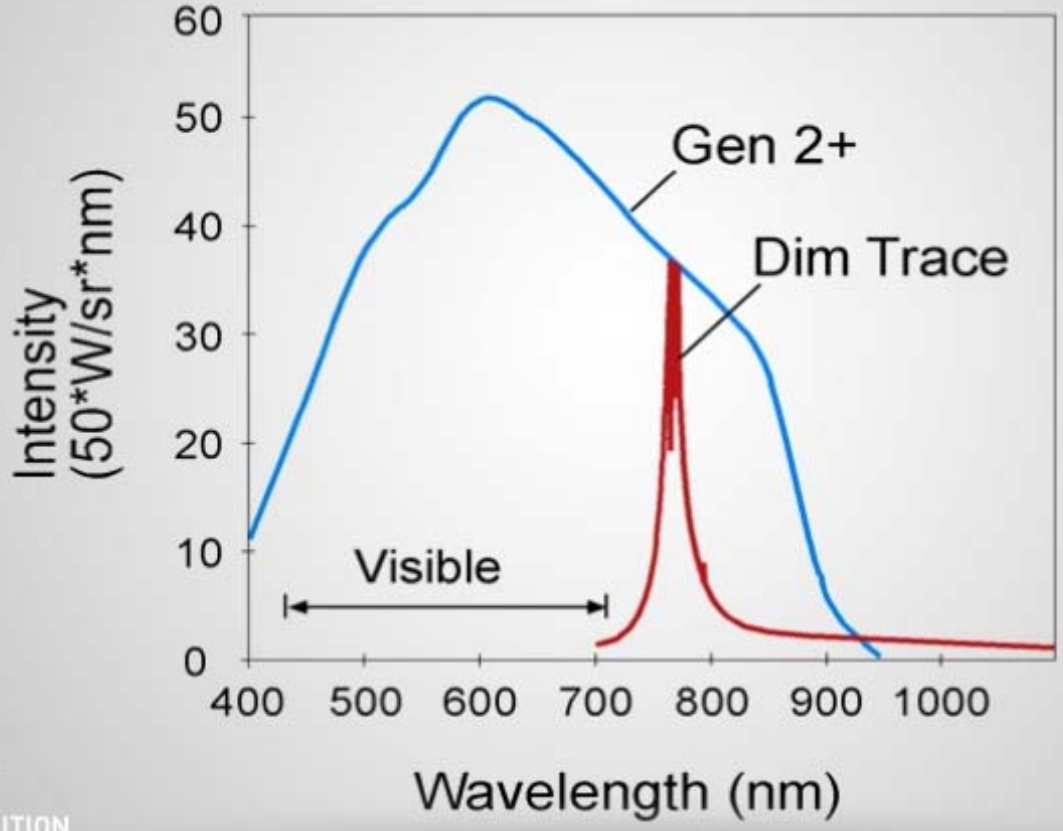
IR - DIM TRACE

EMISSION & NVD SENSITVITY



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IR - DIM TRACER

PROPERTIES

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- General cartridge requirements based on respective STANAG 4172 for 5.56 mm and 2310 for 7.62 mm
- Minimal emission in visible spectrum
- Main emission near to visible IR (NIR) with wavelength 0.7-0.8 nm
- Minimal muzzle flash
- Trace distance with Gen 2+ NVD
  - 5.56 mm – Min 600 m Average 750 m
  - 7.62 mm – Min 775 m Average 1000 m
- Fully ignited IR trace from 50 m

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IR - DIM TRACER

ADVANTAGES v. CONVENTIONAL TRACER

- **Dim Tracer**
  - Opening of fire – Surprise effect
  - Target location – Also after opening of fire
  - Minimal disturbance – Own observers
  - Minimal exposure – Own unit
- **Conventional Tracer**
  - Muzzle flash
  - "Fireballs" at the target
  - Illumination backwards
  - Tracer light track
- **Resulting in**
  - Lower hit probability
  - Exposure of own unit

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IR - DIM TRACER

STANDARD TRACER

VS

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STANDARD TRACER vs DIM TRACER
[Gen III NVD]
IR 7.62
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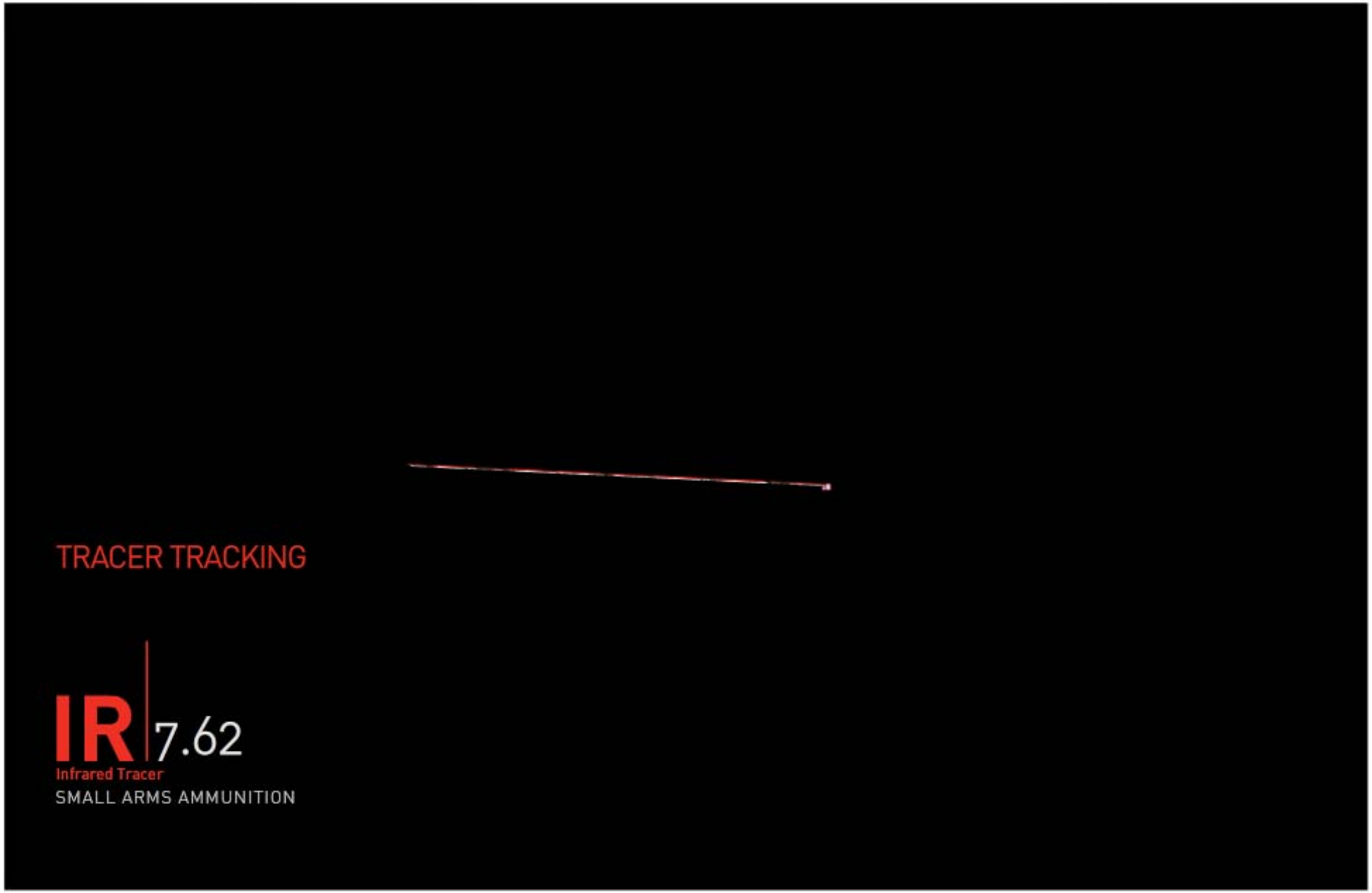
TRACER TRACKING
IR 7.62
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DIM [IR] TRACER

IR 7.62

Infrared Tracer

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1 facts 2 facts 3 zoom

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bullet
#X-ray# : view front
shelf
#X-ray# : view front
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1 facts
2 facts
3 zoom


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1 facts
2 facts
3 zoom


bullet
#X-ray# : view front
IR 7.62
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SMALL ARMS AMMUNITION
1 facts
2 facts
3 zoom

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NEW IR -TRACER PROGRAMS

- 5.56x45 **mm IR Tracer: Qualified as Mk 301.** [In production]
- 7.62x51 **mm IR Tracer** [In production]
- .50**cal** [In production]
- **Development of** 5.56 **mm and** 7.62 **mm Reduced Range IR-Dim Tracer** [Design and Qualification during 2010]
- **Development of 9 mm IR-Dim Tracer** [Study]
- **Development of 4.6 mm IR-Dim Tracer** [Study]

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