# NATO Small Arms Weapons Research & Technology Study

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NATO RTO Study SCI-178/RTG-043

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# Background


- **The goal of this study is to optimize future infantry weapons.**
- **Today's weapons are not optimized as platforms for future sensors.**
- **Future rails should not only be a fastening point for sensors, but should also be able to supply them with power from a centralized battery, and provide data communication.**
- **The NATO RTO (Research and Technology Organization) will perform a study during 2006-2008 called: ”Integration and interoperability issues for dismounted soldier weapon systems”.**

# RTO Study

- Three areas will be studied:
  - Technical interfaces.
  - Human factors analysis.
  - Power supply.
- A pre-study was done in 2005.
- The study will be done 2006-2008, and is named SCI-178/RTG-043.
- The RTO will publish a technical report in December 2008, which will most probably recommend standardization in several areas (technical interfaces, power supply, data communication etc.) with the goal to optimize future infantry weapons.

SCI = Systems Concepts and Integration

RTG = RTO Task Group

# Participating Nations

- 11 participating Nations: Canada, Germany, Spain, Great Britain, Italy, Netherlands, Norway, Romania, Slovakia, Sweden and USA.
- The study is chaired by USA.
  - Technical interfaces is chaired by SWE.
  - Human factors analysis is chaired by CAN.
  - Power supply is chaired by GBR.
- The RTO want the Nations to participate with users, engineers, scientists, and after careful consideration also with selected industries.

# *Requirement for future Technical Interfaces*

- **Zero retention, repeatability and straightness**
- **Power supply**
- **Data transfer**
- **Physical characteristics**
- **Environmental resistance**
- **Sensors (incl . Fire Control Systems)**

# Technical Interface Issues

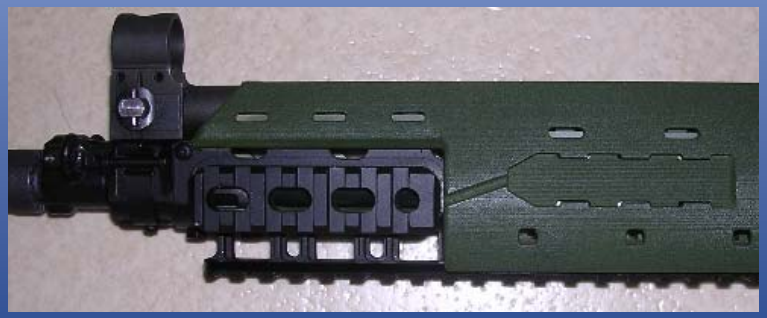
- Protocol for testing zero retention, repeatability and straightness.
- Power supply
  - Galvanic contact
  - Induction
- Data transfer
  - Wired
  - Radio
- Physical characteristics
  - Survey of existing interfaces
  - Length adjustment requirement
  - Mechanical strength requirement
  - Recoil limits
  - Attachment mechanisms
- Environmental resistance acc. to MIL-STD 810F.
- Survey of sensors (incl . Fire Control Systems)

# Technical Interface Issues

- **CAN and SWE will task industry to study a powered MIL-STD 1913 rail.**
- **All nations will request proposal from industry on future sensors, if a powered rail and data communication was available.**

# *Other possible TI's that could be standardized*

- **Magazine**
- **Pressure Switch**
- **Flash Hider**
- **Muzzle Thread**
- **Bayonet Lug**

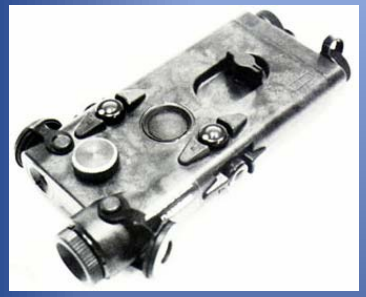


# Human Factors Issues

- Ergonomics of weapons with attached accessories.
- Change of center of gravity with attached accessories.
- How does modern combat shooting training at short range and limited time effect the user while using his weapon with attached accessories?

# Modern accessories

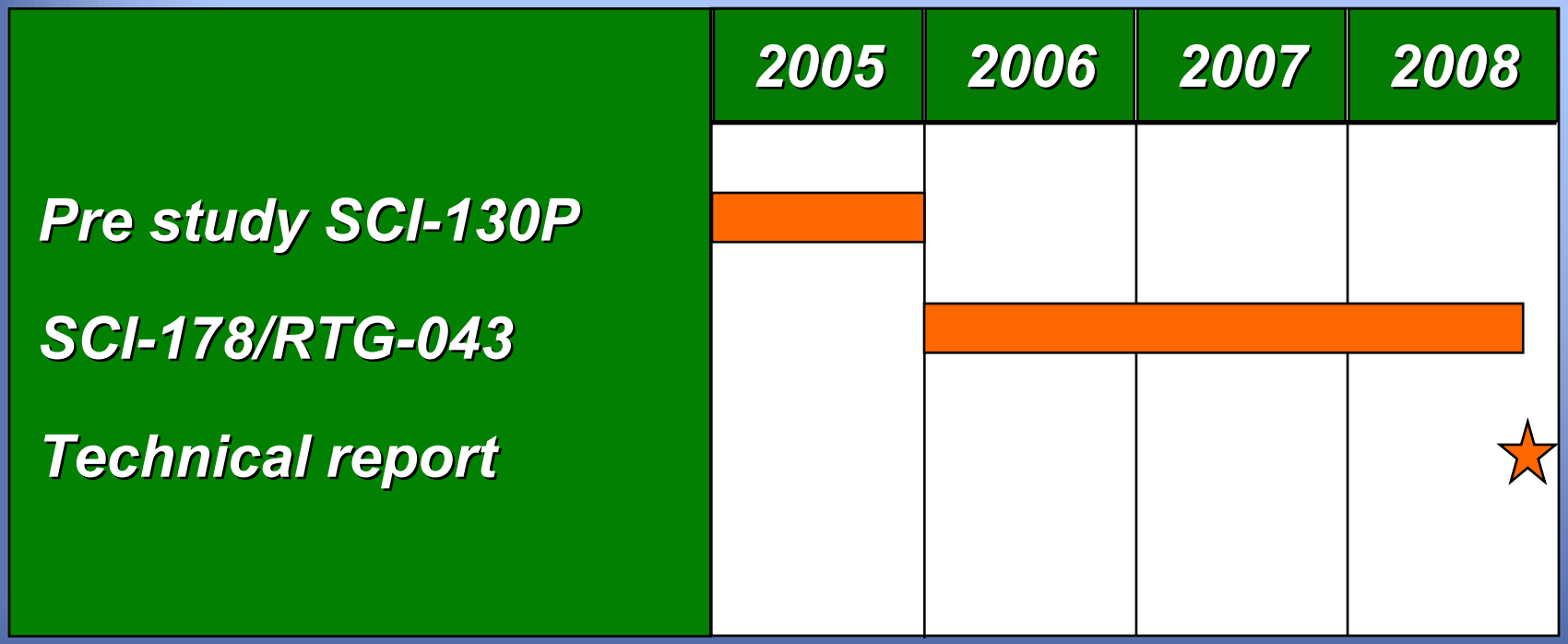
- Most contain batteries, of different types.
- Batteries account for more than 50% of the mass and volume of the item.
- As most are mounted around the handguard, the center of gravity is moved forward.
- This affect the handling of the weapon.
- With a centralized power supply, the battery can be housed in the buttstock, thereby maintaining the center of gravity.



# Power Supply Issues

- Close cooperation with LG/1 ”Dismounted Soldier Systems”.
- Get data on batteries that are used in NATO – devices and the power consumption.
- Get “typical” NATO Soldier Day – mission profile. What power is it likely to use?
- From this data create a baseline for a generic system.

# Time schedule

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# RTO Study

**QUESTIONS?**