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Program Executive Office Soldier

Development of Operationally Relevant Suppressor Test Methods

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Background

- **Current Suppressor Test Methods Have Limited Operational Relevance.**

  - Current TOPs (Mild-STD-1474D, TOP-1-2-608, TOP-3-2-045, TOP-4-2-016)
  - Type of recording instrumentation, setting and calibration
  - Light sensor, camera, microphone placement location
  - Environmental Condition and interpolation method for repeatable results
  - Second camera directly behind weapon for 3D envelop
  - Duration and intensity components is subjectively quantified

- **The current Test Operations Procedure (TOP) for noise only addresses safety and hearing protection at the operator level.**

Concerns

- **Flash Intensity and Duration is subjectively quantified**

  - Does the high-speed camera setting capturing the whole flash event? Or only part of it?
  - Capability of your recording instrumentation, basic requirements?

- **The current TOPs does not address human perception of noise and flash downrange.**

  - How is flash and muzzle blast perceived downrange under different environmental conditions?

  - Does the size/duration of the flash that was captured using the current TOP is “REALLY” what a human eyes can detect or see? Is it greater or less?

  - Those values need to be converted to “human relative intensity / db ” so we can truly evaluate suppressor performance with human in the loop.

- **How much Flash and Noise is acceptable to the user?**
- **What is the Threshold of detection and localization downrange.**

Goals of this study

- **Provide update and additional guideline to the current TOP to effectively evaluate suppressor systems in a controlled, repeatable manner.**
  - For example : Optimal sensor placement, instrumentation requirements / setting…etc
- **To establish and standardize improved test methods that will have operator relevance.**
- **Accomplish the above Goals in Parallel with generation of a new Small Arms Signature Reduction (SASR)Requirement Document.**

Ongoing Research Study effort

Who is leading the effort of this study?

- PM Individual Weapons (PMIW) is leading this study.

Independent SMEs support:

- Aberdeen Test Center (ATC) is the technical lead for Muzzle Flash Measurement, Detection and Localization.
- ARDEC's Acoustic Center of Excellence is the technical lead for Acoustic Suppression measurement.
- ARL/HRED will support the human validation model
- AETC will be engaged when the new test procedures/TOP are ready for validation and adoption.

Point of contacts

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Questions??

- Next is John Hennage from ATC to present his study on muzzle flash measurement.