Objectives

• Debrief demonstrated performance of M107 .50 caliber suppressor samples submitted for government bid sample testing.

• Review general shortcomings, positive performance areas, and soldier feedback.

• Observations on suppressor design and affect on demonstrated performance
Test Lineup

- **Flash** – cross sectional area measured using high speed photography
- **Sound** – peak SPL recorded using digital oscilloscope at five (5) positions
- **Muzzle Blast** – ground disturbance area below suppressor
- **Recoil** – recoil energy (ft-lbs)
- **Accuracy/Dispersion** – five 10 round targets at 500 meters and 1000 meters.
- **Reliability** – 1,000 rounds per candidate, stoppages and failures were recorded
- **Limited User Evaluation** – Army and Marine Snipers

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Flash (baseline)
Flash – Candidate Suppressor

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Flash – Candidate Suppressor
Peak Sound Pressure Level vs. Location

- Baseline
- Min reduction
- Max reduction

140 dB threshold for hearing protection
Reliability

• Overpowering changed the dynamics of the “well tuned” M107 baseline system increasing operating group velocities and stresses
• Broken extractors and cracked charging handles were common
• Frequent stoppages (FFD, FXT) experienced during TT and by Soldiers during LUE
User Evaluation Feedback

• Recoil level in excess of 45 ft-lbs reflected negatively
• Blowback
• Muzzle heavy situations reported above 5 lbs
• Quick attach/detach a must
Recoil Energy

Recoil above 45 ft-lbs reflected negatively in user feedback.

No Shoulder Firing Allowed
Shot Sequence

1. 2. 3. 4.
Weights above 5 lbs reflected negatively in user feedback.
Observations

• Drastic increases in recoil energy produced an overpowering situation resulting in stoppages and premature component failures.

• Expansion tank designs generally produced more blowback than designs that shifted sound frequency outside of the audible frequency range.

• Designs that shifted sound frequency produced excessive recoil energy levels.