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SOUND LEVEL TESTING OF BLACK-OPS 30 CAL SILENCED RIFLE

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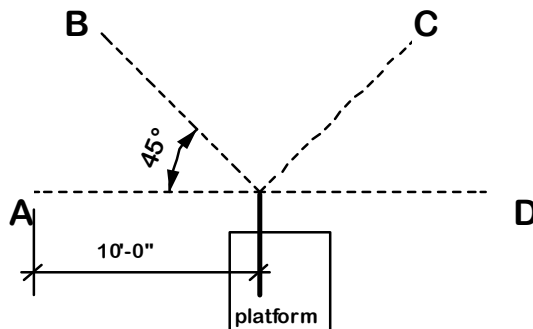
Sound measurements were conducted to document the sound levels of the Black Ops 300 rifle, which is a silenced 30 caliber rifle. The silencing mechanism is part of the integral design of the rifle and is not a removable add-on. Temperature 73 degrees F, wind 12-15 knots.

Measurement Instrumentation used was a Norsonic Precision Sound Analyzer, Model Nor140, and serial no. 1402889. Instrument calibration checks were performed before and after measurements using a Norsonic Sound Calibrator, Type 1251, serial no. 27479. Current laboratory calibration certificates for both the analyzer and calibrator are on file.

Measurement Setup.

Measurements were conducted in an undisclosed pasture near Zephyrhills, Florida. The rifle was in a stationary position on a wooden table and aimed at a target approximately 75 yards away against a berm of dirt and tree stumps. There were four sound measurement locations (A, B, C, & D). These locations, as selected by the acoustician, were at 45 degrees and 90 degrees from the muzzle and at a height of five feet above the ground.

The ten foot distance was selected to be such that the gunshot noise would not over drive the instrument microphone and to be considered as a far-field measurement such that reasonable sound levels can be projected at other distances.



MEASUREMENT LOCATIONS



Gun resting on platform



Sound Analyzer at Location A

Three measurements were taken at each location to get a simple average performance. Additionally there were three different ammunition loads; factory loaded Remington 300 AAC 147 grain Supersonic, factory loaded Remington AAC 300 220 grain Subsonic, and Hand load 220 grain Subsonic. (Hand load consisted of SR4759 powder, 9.82 gr, small rifle primer, Seria Gold Match 220 gr projectile, 1050 fps verified by chronograph) The results are tabulated on the following page.

	LAeq	LAF(max)
Remington (147 grain) supersonic		
location		
A	76	101
B	93	116
C	95	118
D	83	106
Remington (220 grain) subsonic		
location		
A	77	101
B	87	112
C	90	111
D	77	101
Handload (220 grain) subsonic		
location		
A	77	98
B	86	109
C	88	109
D	78	99

Discussion

Typically sound levels are reported in decibels A-weighted (dBA) as this is the most common metric in general public use. Since a gunshot is an impulse noise the instrumentation “fast” response (LAFmax) is used. Tabulation below is the average of three shots at each location. Many sound meters used by the public, including some smart phone apps do not have impulsive or comparable “fast” response times built in to their circuitry; thus an LAeq value is also shown for comparative purposes. The LAeq value is a one-second average sound level, wherein the gunshot sound impulse is just a few milliseconds, thus within a one-second time frame, sound before and after the shot is averaged in. Additionally, if comparing sound levels from the Black Ops 300 to other firearms, one must consider the measurement distance along with the test instrumentation weighting, such as dBA. Different distances and different measurement instrumentation settings can lead to misleading comparisons.

Submitted by,

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