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### Impulse and continuous noise reduction of tactical hearing protection systems

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Tactical hearing protectors are devices designed to protect the wearer from high levels of impulse noise while providing some ambient listening and communication capability. Many of these devices also provide some attenuation of continuous noise. The efficacy of these types of devices depends on the amount of impulse noise protection and continuous noise protection, the quality of the ambient listening capability, and the intelligibility of the speech communication capability. This paper will describe the peak noise reduction of approximately 1 ms duration impulses with peak levels at 165 dB and 195 dB, for several earplugs and earmuffs. The frequency dependent reduction of impulse noise measured using an acoustic test fixture (the French German Research Institute at Saint Louis Head). Generally the data show higher levels of impulse noise reduction with earplugs than with earmuffs. Additionally, continuous noise attenuation was measured using human subjects performing the ANSI S12.6 Real Ear At Threshold (REAT) test. High speed (20k frames/sec) video will show the dynamic motion of typical tactical hearing protection earplugs and earmuffs when stimulated with a 195 dB impulse.