

HEARING PROTECTION FOR MUSICIANS

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ABSTRACT

For a musician's career it is important to protect own hearing. Professional products therefore should always be custom made. There are several brands doing so called „linear filtering“ by providing band pass filtering for a standard ear channel resonance at 2,7 kHz. They shall now damp the whole frequency range in a regular way, so that sound quality can be preserved while hearing is protected. But: looking at the individual acoustics of an ear channel resonance with its deviation of almost one octave at the peak, the damping can theoretically never be really regular. That includes sound discoloration, which is – in most cases - not beneficial for musical purpose. Several validating tests for hearing protector devices will be presented and referenced to the belonging standards. Every validation test has its pros and cons. To eliminate some disadvantages, a study with a miniature microphone in the ear channel shows results on eight individual ears. The results are some aspects of the impact of the damping with regard to music, which can now be heard because of the recording by the microphone in the ear channel. These results are challenging for audiologists adapting custom made hearing protection for musicians. Individual solutions with different filtering of the two ears are sometimes demanded from certain instrumentalists like flutists or violinists. Regular damping is not always what a musician is looking for: a clarinetist next to a piccolo player for example will be happy getting more damping in the higher frequency range. And last but not least: regular verification as proposed from the industry (leak test and damping verification at 500 Hz) fail completely in music application, where subjective test methods are most advantageous, but need profound expertise.