

Characteristics of background noises and noise-reduction system

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The acoustical environment we usually live in can be characterized by the number of simultaneously active sound sources and – at least in closed rooms – by the reverberation time. While the daily life of hearing impaired listeners covers a wide range within this simple parameter space, both the standard tests for hearing impairment and hearing aid benefit as well as the noise reduction algorithms currently included in hearing instruments only cover a very limited range. This talk will therefore review the assumptions underlying noise reduction systems in hearing aids and the range of conditions in which they normally function. As soon as binaural processing is available, i.e., the support or even replacement of normal binaural noise and reverberation suppression, a wide variety of “true” binaural noise reduction algorithms can be employed that cover a broader area in the above-mentioned parameter space. Hence, the basic principles of such binaural noise reduction systems will be discussed and their advantage and shortcomings will be reviewed.