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Hearing-adequate Assessment of Background Noise Modulation in Conversations

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Environmental noise present during telephone conversations is typically transmitted via the terminals to the conversation partner at the far end - a scenario which is very typical when using mobile phones or automotive hand-free implementations. The background noise is processed by noise reduction algorithms but may additionally be modulated by echo suppression in the terminals. This often leads to an audible and annoying noise contrast at the far end side, depending if the user on this side is talking or listening only. Up to now current standards for terminal tests verify this modulation by a rudimentary “one dimensional dB value”, which often gives room for interpretation by test engineers. This contribution discusses an analytical model for the hearing-adequate analysis of such talking-related modulations in terminals. The method provides MOS-like scores from laboratory test results. It is applicable in narrowband and wideband scenarios and shows a high correlation to the results of listening tests.