

Title:

Sound quality evaluation of noises with spectro-temporal patterns

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Abstract:

Sound quality evaluation has become a very important task for product design. Customers expect product sounds without disturbing noises, a challenge because spectro-temporal noise patterns (such as modulated signals causing a roughness sensation) must be considered besides frequency weighted level like dB(A) or loudness. If the sound of a technical product exhibits these characteristics, it is most likely associated with poor quality.

In the scope of this paper typical characteristics of such noise phenomena are investigated in time and frequency domain using established methods (e. g., Modulation Spectrum, Relative Approach). Noise variants with differently pronounced patterns and modulation are generated by systematically manipulating the source. These sounds are evaluated in listening tests with regard to a quality criterion. Furthermore, based on the results of the listening tests, analysis methods are presented as the basis for an instrumental assessment of the interesting noise phenomena.

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