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Title:

Investigation into Generating Wind for Testing ANC Headphones

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Abstract:

Active noise cancelling (ANC) headphones are commonly used in all kinds of environments nowadays. They are cancelling (or at least attenuating) many types of noises effectively. One type of noise that has proven to be challenging for these devices is wind noise. In contrast to most other noises, its origin is not a localized external sound source but the processes within an air flow and its interaction with physical objects (e.g., the headphone itself). Accordingly, the wind noises at two points (e.g., different device microphones) show little to no coherence. Thus, it is a complex task for the headphones to deal with this type of noise.

A proposal for a wind noise simulation is found in a recent amendment to ETSI TS 103 640, a technical specification focusing on testing ANC headphones. Based on this proposal, an experimental investigation into wind noise generation, reproducibility and the practical applicability of the methodology is presented in this contribution. Test results for commercially available ANC headphones are presented. The challenges of integrating different wind generators in typical test setups and their impact on measurement results are discussed.