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Perceived Listening Effort for In-car Communication Systems

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Communication inside a car cabin can be quite difficult depending on the driving situation, e.g. due to a low signal-to-noise ratio. Up to a certain degree, in-car communication (ICC) systems serve as a remedy for this situation. ICC systems aim to lower the necessary listening effort by recording the talker's speech signal and reproducing it over loudspeakers close to the listener's ears.

Concerning ICC systems in particular, a clear trade-off has to be made between listening effort and speech quality. Accordingly, a tailor-made auditory test design that assesses both attributes simultaneously has been developed recently. The test procedure and the corresponding test conditions are described in the upcoming specification ETSI TS 103 558. Results of auditory tests with this design are presented and analyzed.

The technical specification ETSI TS 103 558 will also contain an instrumental evaluation approach for listening effort, which is based on the same binaural recordings being used as stimuli in the auditory evaluation. This contribution presents an algorithmic overview of the model's first version, as well as initial prediction results. A comparison with the auditory results illustrates the prediction performance of the novel approach.

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