INVESTIGATION OF SELF-MASKING EFFECTS FOR THE EVALUATION OF IN-CAR COMMUNICATION SYSTEMS

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ABSTRACT
The communication situation inside a passenger compartment can be impaired due to a high background noise at higher velocities. An In-Car Communication system (ICC system) is capable of improving this situation by recording the speech signal and reproducing the enhanced speech signal via the integrated loudspeakers. Due to this playback the speech level at the ears of listening passenger is increased but the signal is also fed back to the talking passenger. This might be disturbing for the talking passenger and hence might also be a quality issue of an ICC system. Up to now, the impact of this effect is not entirely clear and has not been investigated in detail yet. This contribution gives a first glance on this self-masking effect. Therefore, a psycho-acoustic experiment with test persons is presented in which these subjects should define in various scenarios, if the feedback is audible or even disturbing. The parameters of a scenario such as the delay of the feedback, the frequency range, and the current background noise are varied. Finally, the effect of the different parameters on the talking passenger and the impact on the quality of an ICC system is investigated.

Index Terms— ICC system, closed electro-acoustic loop, ICC system evaluation