

## Listening Effort vs. Speech Intelligibility in Car Environments

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The in-car listening situation is often impacted by low SNR conditions which lead to reduced speech intelligibility and higher listening effort, respectively. This applies to hands-free communication but also to in-car communication between driver and passengers in a similar way. Instrumental as well as auditory assessment of intelligibility in such scenarios is still a challenging task. The auditory test procedures are time consuming and thus expensive. Currently, also no suitable instrumental analyses are available.

On the other hand, the assessment of listening effort can be derived by listening tests according ITU-T recommendation P.800, which is often more efficient to conduct. In the literature already several hints concerning the correlation between listening effort and intelligibility can be found. However, so far the comprehensions of car cabin acoustics or communication devices are not taken into account.

This contribution presents two auditory experiments. The first one evaluates the speech intelligibility in certain scenarios with “classical” methods (counting of correctly understood words). The second experiment uses real speech as stimuli and is carried out according to ITU-T recommendation P.800 evaluating the listening effort on a 5-point scale. The results of both auditory experiments are compared to investigate the relation between listening effort and intelligibility.

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