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Test Environment for Realistic Listening Evaluation of Disturbed Radio Broadcast

U. Müsch, M. Lepage*, F. Kettler*, *HEAD acoustics GmbH*
*J. Zerlik**, F. Homann**, C. Montag**, **Robert Bosch Car Multimedia GmbH*

The quality of in-vehicle radio reception (radio broadcast) depends on various parameters, both, transmission and receiver related, such as the field intensity, propagation characteristics (reflections, interference, multi-path transmission), the antenna design and, last but not least, the implemented signal processing in the FM receivers itself. Depending on the current RF transmission path, well known disturbances like short term “pops” or noise bursts occur in cars. To optimize the listening quality under disturbed transmission conditions, several techniques are common in FM receivers, such as attenuating high frequencies (“high cut”), switch from stereo to mono playback or temporarily even mute the loudspeaker signal.
In order to evaluate these kinds of disturbances by the human hearing, a specific listening test was designed, where test persons assessed a high number of listening examples in a controlled but realistic environment. The use of a driving simulator including visual feedback generated an appropriate cognitive load. 18 test persons judged more than 100 samples (different music styles, speech, diversely disturbed). The more than 2000 ratings provide a data base for the quality assessment of typical disturbances in radio broadcast. The test design and a number of results are discussed.