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Title:

Advances in Reproducing Reverberation for the Receiving Path

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Abstract:

Due to the increased usage of teleconferencing tools in recent years, hands-free terminals like e.g., conference phones or notebook computers are used more often in daily work. In home environments, smart speakers are also increasingly available and are used for telephony, media playback, or as a speech-based dialogue interface.

For both types of devices, the performance in receive direction strongly depends on the room acoustics, which directly influence the signal processing. Thus, qualification of such devices requires a realistic, efficient but also reproducible way to generate reverberation scenarios in the lab. An initial approach was presented at DAGA 2022, which already allowed a sufficiently accurate reproduction of reverberation time at the listener's position. However, but the spectral characteristics between real and simulated environment differed significantly.

Due to varying directivity, level, and frequency response, the simulation of reverberation and its calibration depends on the device under test. The previously used approach was found to be insufficient due to the residual reverberation of most measurement chambers. This contribution proposes an improved routine that is applied in a measurement series, which was conducted in real and simulated environments. Results of typical devices are compared regarding reverberation time as well as spectral accuracy.

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