

## DAGA 2023 – 49. Jahrestagung für Akustik

2023-03-06/09

**Place:**

Hamburg, Germany

**Title:**

A New ASR Testing Approach to Optimize Microphone Pre-Processing in Vehicles

**Authors:**

Frank Kettler, Nils Rohrer

**Abstract:**

The ASR certification (like for Siri, Alexa Auto,...) is often an unsatisfying process for a vehicle manufacturer. His influence is limited to the vehicle cabin, the microphone type, position and pre-processing, the ASR engine itself (local WW detection and, in particular, cloud-based recognition engine) is completely out of vehicle manufacturer's control. In practice, certification tests often result in a 'try-and-error' approach, in case the ASR results do not meet the limits for certification.

A new test method provides more detailed information beyond the pure recognition rate. It is suitable to optimize the acoustic properties and microphone pre-processing in a vehicle cabin, both, for general better ASR performance, and -in particular- ahead of such certification tests.

The test method calculates the correct word rate, respectively word error rate, for a given setup and ASR engine, based on edit distance operations. Additional failure information like the number of word deletions, substitutions and insertions are useful for optimization. It is also applicable for multi-talker scenarios, for microphone beamforming and separation techniques. It may help to steer a development process providing cost-benefit estimations.

Find more event abstracts in our [>> abstracts archive <<](#)