

DAGA2021/475

Speech Quality Testing - Part I: Auditory Assessment of Communication Scenarios

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Assessing the user experience is paramount for testing and developing modern communication systems which are expected to provide high speech quality in all use cases and in all acoustic environments. A wide range of challenging acoustical conditions is encountered particularly by hands-free devices. Noticeable reverberation and background noise are among the most common degradations for this use case.

This contribution provides an auditory assessment of the influence of different degradations on the speech quality. Acoustical measurements of realistic telecommunication scenarios were carried out to compile a comprehensive and meaningful set of test conditions for a listening test. These conditions comprise smartphones in different positions as well as vehicle and desktop hands-free devices. A speech quality test according to the guidelines in ITU-T P.800 and ITU T P.863 was conducted. The choice of test conditions is explained and the properties of the dataset are described. An analysis of the results of the listening test shows that the design can assess such a wide variety of test conditions and that differences between these conditions lead to plausible differences between their respective scores. The resulting dataset provides a valuable resource to investigate the capabilities of instrumental assessment methodologies in a companion contribution.

Anzahl der Wörter in der Zusammenfassung: 199

Klassifikation: Sprachverarbeitung

Strukturierte Sitzung: Advances in Communication Experiences

Präsentationsart: Vortrag bevorzugt

Anmeldung: 359210469 - Schäfer Magnus - 0 0 nicht bezahlt