

Deriving Equipment Impairment Factors for Wideband Speech Codecs

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Speech quality modelling for wideband communication should take into account the whole transmission channel, from the mouth of the talker to the ear of the listener and vice-versa. For narrow-band systems, the E-model predicts speech quality mouth-to-ear in a modular way, via so-called impairment factors. The subjective effects of coding distortions are included in the equipment impairment factor I_e , and methods have been defined for calculating I_e values from the results of auditory listening tests (ITU-T Rec. P.833), or from instrumental measures like PESQ (ITU-T Rec. P.834).

In this talk, a first attempt is made to calculate I_e values for wideband speech codecs, following as far as possible the procedure which has been developed for the narrow-band case. Auditory test results obtained for the AMR wideband codecs are taken as the input values. Reference conditions for anchoring wideband speech codecs have not yet been defined; as a consequence, the transformation rules described in ITU-T Rec. P.833 have been adapted to the wideband case. The problems which have been encountered in the derivation are discussed, and an interpretation of the obtained I_e values is given.