

## **Predicting speech quality under noise in wideband Speech transmission**

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Prediction of users' opinion of speech quality in telecommunication is of a major issue in speech transmission planning. For this purpose, reliable models, such as the E-model (ITU-T Rec. G.107, 2005) were developed for narrow-band (NB) transmission. Meanwhile, telephony using the Internet Protocol (VoIP) has enabled an enlargement of the transmission band, introducing wideband (WB; 50-7000 Hz and beyond) to every day communication. The quality improvement thanks to the bandwidth extension was found to be 29%, as compared with NB [3]. Consequently, an up-dated planning model is required to assess quality in WB speech transmission. We performed two listening only tests to study the quality impairment due to signal attenuation, different noise types and level and various codecs. The tests showed that user's quality perception in case of WB was similar to NB for the noisy conditions. However, considerably higher judgments were given to WB than to NB for the low-noised conditions. With increasing noise level, the quality of NB and WB become more and more alike, and quality differences between codecs decrease. Following the lines of thoughts of the E-model, we propose a model assessing the quality impairment in WB speech transmission resulting from noise and/or signal attenuation.