

A New Objective Model for Wide- and Narrowband Speech Quality Prediction in Communications including background noise

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Abstract:

Modern wideband communication systems like mobile phones or hands-free terminals are more and more used in the presence of background noise. To improve the signal-to-noise ratio, the speech recorded at the terminal is often passed through noise reduction algorithms with non-linear and time-variant processing. However, such algorithms may also audibly degrade the speech quality of the transmitted signal, particularly when the background noise is time-variant or non-stationary. To judge the influence of speech processing algorithms, subjective testing according to ITU-T Recommendation P.835 is required to subjectively determine the mean opinion scores (MOS) of the speech, noise and the overall quality of a sample. Based on the Relative Approach algorithm, we introduce a new model for objectively measuring the quality of wide-band speech in noisy environments which provides a high correlation with the subjective MOS.