



## ENHANCED OUTPUT-BASED PERCEPTUAL MEASURE FOR PREDICTING SUBJECTIVE QUALITY OF SPEECH (ThuAmPO4)

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★ **Abstract :** This paper presents an enhanced version of a non-intrusive measure for assessment of speech quality of voice communication systems and evaluates its performance. The new measure, which uses only the output of the system, is based on measuring perception-based objective auditory distances between voiced parts of the output (processed) speech whose quality is to be evaluated to appropriately matching references extracted from one of four pre-formulated codebooks, depending on their estimated pitch values. The codebooks are formed by optimally clustering large number of parametric speech vectors extracted from a database of clean speech records. The measured auditory distances are then mapped into equivalent subjective Mean Opinion Scores (MOS). The required clustering and matching process was effected by using an efficient data-mining tool known as the Self-Organizing Map (SOM). The short-time Bark Spectrum analysis is used in order to achieve perception-based, speaker-independent parametric representation of the speech. Reported evaluation results show that the proposed enhanced speech quality assessment method provides quality scores that are highly correlated with MOS obtained by formal subjective listening tests.