

# **COMFORT NOISE DETECTION AND GSM-FR-CODEC DETECTION FOR SPEECH-QUALITY EVALUATIONS IN TELEPHONE NETWORKS**

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## **ABSTRACT**

This paper proposes two algorithms to measure special quality-relevant characteristics of telephone links. The first algorithm presented here allows to detect the GSM-FR codec in transmission systems. For this purpose, the spectral region of the decoded signal around 2700 Hz is evaluated. The GSM-FR coding principle inserts a spectral attenuation in this frequency region that can be detected. The error rate is below 5%. The purpose of the second algorithm is to detect comfort noise in telephone connections. Therefore, frequency points of the background-noise spectrum throughout the duration of speech utterances are sampled, by making use of minimum statistics in frequency-tracks of speech segments. These frequency points are compared to the noise in speech pauses in a statistical manner to evaluate differences and decide about the occurrence of comfort noise. The error rate for the used data base is below , but further investigations are necessary to verify this algorithm.