

This thesis aims to provide population statistics for the spectral moments of four Czech voiceless fricatives: alveolar fricative [s], postalveolar fricative [ʃ], velar fricative [x], and the voiceless allophone of the Czech fricative trill [ɸ̥]. The goal was to improve the efficiency of assessing typicality of spectral moments values within the Czech male population and to examine how the spectral moments are affected by two types of telephone transmission— using narrowband and wideband codecs. The study is divided into theoretical and practical parts. The theoretical part introduces forensic phonetics, focusing on voice comparison and key concepts like similarity and typicality. It also provides a theoretical background for fricatives, emphasizing their articulatory and acoustic descriptions. The practical section describes the methodology for obtaining the population statistics. The results included detailed population statistics of spectral moment derived from analysing recordings of semi-spontaneous speech from 60 male speakers. The hypothesis that spectral moments would be significantly altered in narrowband codec simulations was supported, while the hypothesis for wideband codec changes was not fully confirmed due to the inability to determine statistical significance from the analysis. Future research is required to address this gap.