

CHAPTER 7

Experiment 3

Background Noise Effects on Electrolarynx Speech Perception

Experiment 2 was consistent with the hypothesis that the electrolarynx voicing source pulse duration and frequency were important factors responsible for the negative listener perceptions of these devices. To evaluate the pulse duration effects, the synthetic electrolarynx open quotient parameter was systematically increased in Experiment 2 from the narrow vocal fry mode range typical of these devices to those more representative of normal or modal phonation. The results from Experiment 2 indicated that longer duty cycle durations are less aversive to listeners. In addition to open quotient duration, variation of source frequency has been shown to directly effect phonemic timbre and therefore listener quality perceptions. The mean subject quality rating scores produced in Experiment 2 revealed a significant main effect for fundamental frequency on duty cycle duration quality ratings. The mean subject quality rating scores for stimuli presented at an F_0 of 140 Hz are lower than those for the same stimuli presented at 90 Hz. However, these findings were derived from subjects listening to synthetic electrolarynx speech in noise free conditions. In normal listening environments, extraneous noise often interferes with speech perception (Kalikow et al., 1977).