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Average Speech Levels and Spectra in Various Speaking/Listening Conditions

A Summary of the Pearson, Bennett, & Fidell (1977) Report

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The large study undertaken by Pearsons et al. (1977) for the Environmental Protection Agency nicely demonstrates "usual" speech levels in a variety of settings in classrooms, homes, hospitals, department stores, and commercial transportation. In most settings, speech levels were between 55 and 66 dBA at conversation distances in the school, home, hospital, and department store environments. S/N ratios on the order of 5 to 15 dB were maintained.

Communication distance in the trains and airplanes was considerably less than the usual 1 m, and the speech levels were higher, 73 to 77 dBA, but still at a -1 or -2 dB S/N ratio in the train and airplanes, respectively. Their measurements in an anechoic chamber further reflected the levels of conversational speech in a quiet environment, as well as the levels and spectra for different vocal efforts by females, males, and children. Speech spectra were generally similar for the groups of talkers for casual conversation through raised vocal efforts. For loud speech, and particularly for shouted speech, male speech levels were greater than the speech levels of the females and children. The maximum one-third octave bands for loud and shouted speech shifted to higher frequencies for all three groups.

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