

Median Noise-Induced Hearing Loss vs. Frequency – Long-Term Exposure:

Noise Rating Curves:

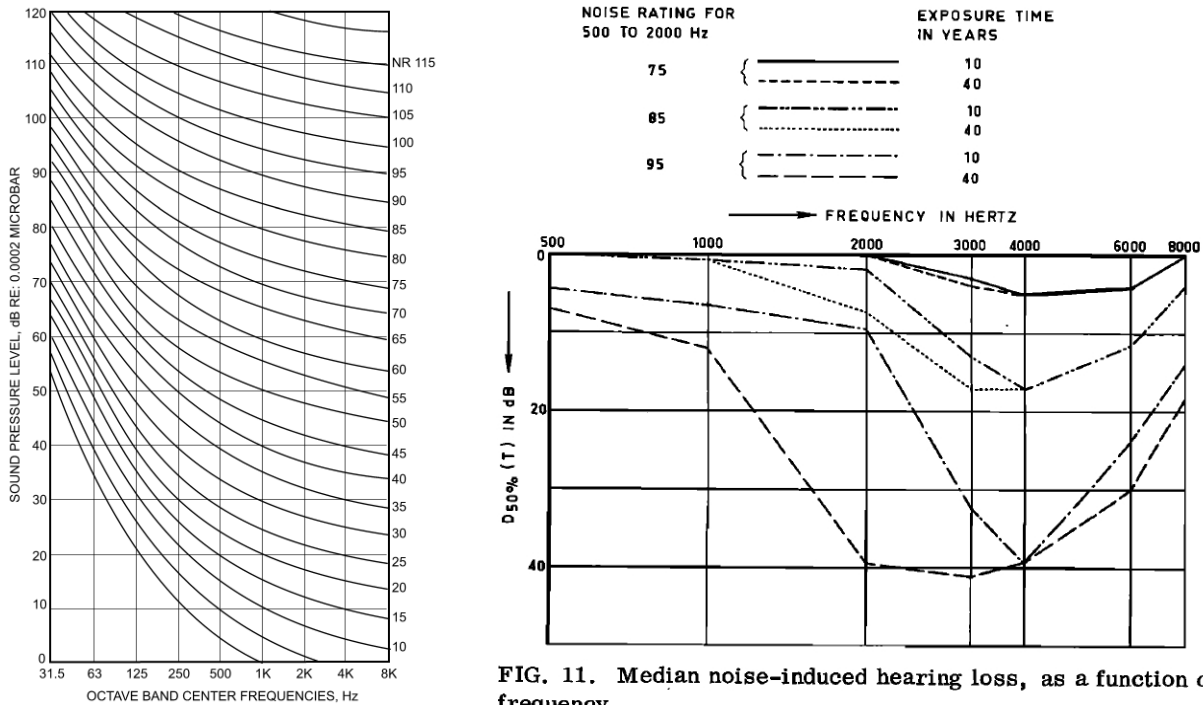


FIG. 11. Median noise-induced hearing loss, as a function of frequency.

W. Passchier-Vermeer, “Hearing Loss Due to Continuous Exposure to Broad-Band Noise”, Jour. Acoust. Soc. Am., Vol. 56, No. 5, p. 1585-1593, November 1974

OSHA Maximum Permissible Daily Exposure Limits – Industrial Noise:

Since 1970, there exist legal time limits for exposure to noise in the workplace – for industries doing business with the U.S. federal government, as shown in the figures and left-hand table below*, assuming an 8 hour workday, 5 days/week. These limits were obtained from extensive analyses of workplace-related hearing loss – permanent threshold shifts in human hearing, expressed in dB units. Note that the legal limits provide protection only for frequencies necessary for the understanding of speech. No allowance was made for exposure to noise outside of the work place. These legal noise level limits were determined so as to protect 85% of the exposed population, while assuming that financial compensation would be provided for the remaining 15%, who were assumed to be more susceptible to hearing loss due to noise exposure.

If daily industrial/work noise exposure is composed of two or more periods of noise exposure at different levels, their combined effect can be taken into account via the daily exposure requirement that $\sum t_i/T_i < 1$, where t_i is the i^{th} exposure time at SPL_i and T_i is the OSHA exposure time limit at that SPL_i .

Recommended non-occupational daily noise exposure time limits are also shown figures in the right-hand table below**, for comparison.