

ACOUSTICS2008/2303
Recovery of distortion product otoacoustic emissions (DPOAE)
after impulse vs. continuous equal-energy exposures

Miguel Angel Aranda De Toro, Rodrigo Ordoñez, Karen Reuter and Dorte Hammershøi
Acoustics, Aalborg University, Fredrik Bajers Vej 7 B5, 9220 Aalborg Ø, Denmark

The correct assessment of impulse noise from occupational environments for hearing-conservation purposes is still a controversial issue. Currently, no universally accepted standard defines impulse noise accurately nor does a standard method exist to measure impulses. Moreover, current impulse-damage risk-criteria suffer from lack of empirical data needed to quantify impulse noise exposures and assess potential damage. In this experiment human subjects are exposed to binaural recordings of noises from industrial environments. Stimuli consist of impulse noise, continuous noise, and combinations of impulse and continuous noise. Noise exposures are normalized to have the same energy ($L_{Aeq,8h} = 80\text{dB}$). The effects in the hearing of the subjects are monitored by measuring the recovery of the distortion product otoacoustic emissions (DPOAE) with high-time resolution. The results can be used to investigate the validity of current assessment methods and descriptors of the temporal characteristics of sound exposures and their relation to the temporal effects produced on the human hearing as well as investigating selected issues that may lead to possible improvements or alternative measuring methods. [Work supported by the Danish Research Council for Technology and Production.]