

ACOUSTICS2008/2899
Effect of boundary restraints on sound radiation

Wen Li

Wayne State University, Department of Mechanical Engineering, 5050 Anthony Wayne Dr., Detroit, MI
48202, USA

This study is focused on the effect of boundary restraints on the sound radiation from a rectangular plate. The modal and acoustic characteristics of square plates are studied for different restraining stiffnesses and configurations. It is shown that the modes of the restrained plates can be considerably different from those for the familiar simply supported boundary condition, so are the corresponding modal radiation efficiencies. The proposed method generally applies to the plates elastically restrained along any edge(s) and for any stiffness values. The acoustic calculations are also valid for any acoustic wavenumber, instead of only for some extreme acoustic/structural wavenumbers as in other investigations.