Sound radiation from finite surfaces - DTU Orbit (08/08/2016)

Sound radiation from finite surfaces

A method to account for the effect of finite size in acoustic power radiation problem of planar surfaces using spatial windowing is developed. Cremer and Heckl presents a very useful formula for the power radiating from a structure using the spatially Fourier transformed velocity, which combined with spatially windowing of a plane waves can be used to take into account the finite size. In the present paper, this is developed by means of a radiation impedance for finite surfaces, that is used instead of the radiation impedance for infinite surfaces. In this way, the spatial windowing is included in the radiation formula directly, and no pre-windowing is needed. Examples are given for the radiation efficiency, and the results are compared with results found in the literature.

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