Abstract

In recent years a perspective alternative to the already well established element based acoustic simulation methods (FEM, BEM) has been developed. The wave based prediction technique (WBT) is based on an indirect Trefftz approach in that it uses exact solutions of the governing differential equation to approximate the dynamic field variables, requiring a less fine element discretization. This results in smaller numerical models which exhibit an enhanced computational efficiency as compared with the element based methods. Recent developments showed the applicability of the method to acoustic problems involving unbounded domains as well, such as sound radiation or sound scattering problems. To prove the potential of the method in extending the frequency range of interest up to the mid-frequency range, an industrial-like validation example was calculated up to 3kHz, with an in-depth analysis of the results by means of residual measures too.