far-field acoustic properties of LES JOHN WANDERER, ASSAD OBERAI, Boston University Department of Aerospace and Mechanical Engineering — Several large eddy simulation (LES) models were evaluated with respect to their ability to predict far-field noise generated by sustained homogeneous isotropic turbulence. The far-field acoustic pressure was determined using an analytical solution of Lighthill's acoustic analogy resulting in an expression for the wavenumber-frequency spectra of the acoustic intensity in terms of a forth-order, two-point statistic of the incompressible velocity field. The ability of various LES models to accurately replicate this statistic was compared against results from direct numerical simulations. In the comparison, the Smagorinsky (constant coefficient and dynamic) and several variants of the variational multiscale formulation (constant coefficient and dynamic) were considered.

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