

Abstract Submitted
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Effectiveness of Thin Urethane Coatings for Attenuating Flow Noise in SONAR Arrays WILLIAM KEITH, NAVSEA Newport, IAN COOK, Cornell Univ, ALIA FOLEY, KIMBERLY CIPOLLA, NAVSEA Newport — The wall pressure fluctuations exerted on the wall beneath a turbulent boundary layer introduce flow noise which limits the performance of SONAR arrays. One method for mitigating this flow noise is to increase the standoff distance between the fluid-solid interface and the sensors in the array. A parametric study was conducted comparing the energy spectra of the wall pressure fluctuations measured by wall pressure sensors under .025" and .05" coatings of urethane beneath an aqueous, flat plate turbulent boundary layer. Measurements made with the sensors flush mounted in a flat plate, directly under the boundary layer (no coating) serve as a baseline for comparison. Reynolds number effects are considered, as is the effectiveness of boundary layer variables for collapsing the data (i.e. scaling relationships).

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