ACOUSTICS2008/1879 Modeling real porous tube infrasonic arrays

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Measured values of acoustic resistance in porous hoses have been implemented into a previously developed porous tube model for infrasonic arrays [J. Acoust. Soc. Am. 122, 2960 (2007)]. Garden soaker hoses are commonly used in porous infrasonic arrays, and a simple method for the measurement the acoustic resistance of a segment of soaker hose will be presented. This experimentally determined resistance value can be implemented into the porous tube model for an improved array response prediction. It is anticipated that this analysis will give rise to improved phase and magnitude predictions for this type of array. Applications include design optimization of porous tube arrays, and infrasonic propagation through porous ducts. [Research funded by the Applied Research Laboratory Educational and Foundational Fund.]