

Signal performance of micromachined silicon inductive microphones

Abuelma'atti , M.T. (2007)

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Abstract

A mathematical model for the open-circuit output voltage of a micromachined silicon inductive microphone is presented. The model, basically a sine-series function, can easily yield closed-form expressions for the amplitudes of the output components resulting from a multisinusoidal input acoustic pressure. The special case of an equal-amplitude two-tone acoustic pressure input is considered in detail. The results show that, the microphone generates both even and odd-order harmonic and intermodulation products.