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A two-point method for direct measurement of the room constant

ZACHARY JENSEN, TIMOTHY LEISHMAN, Brigham Young University — The room constant is a key frequency-dependent value that is widely used to characterize reverberant fields. It is typically estimated from room boundary properties, viz., total surface area and average absorption coefficient. Unfortunately, these properties are often difficult to ascertain with sufficient accuracy. While reverberation times may be adequately measured using modern methods, the effective surface areas and volumes of many practical rooms are elusive. Furthermore, several formulations for the room constant exist without general agreement as to their best usage. This presentation introduces a two-point energy-based method that enables acousticians to feasibly measure the room constant without knowledge of the room volume, surface area, or average absorption coefficient. Numerical simulations illustrate the benefits of the approach.

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