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Repeatability and reproducibility of field noise isolation testing

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The reliability and precision of test measurements and methods are generally described in terms of repeatability and reproducibility. ASTM standards define and quantify these terms for noise isolation test methods in both laboratory and field conditions. Understanding these as reproducibility and repeatability of the measurement method, the authors extend the concept to the reproducibility and repeatability of a wall or floor/ceiling assembly design. Multiple instances of a floor/ceiling assembly on a multi-family residential project built by the same contractors is an example of design repeatability, while the same assembly design constructed on different projects is an example of design reproducibility. In a previous paper [LoVerde and Dong, *J. Acoust. Soc. Am.* 122, 2955 (2007)], definitions were suggested for field repeatability and reproducibility for Field Impact Insulation Class testing. Test data is presented to quantify the field repeatability and reproducibility of several assembly designs, which are compared to laboratory values. Field and laboratory repeatability and reproducibility of airborne noise isolation for a partition assembly are also examined.