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Acoustical Society of America
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AMERICAN NATIONAL STANDARD Mechanical Coupler for Measurement of Bone Vibrators

ABSTRACT

This standard specifies requirements for mechanical couplers used for calibrating bone-conduction audiometers and making measurements on bone vibrators and bone-conduction hearing aids. Specific design features are given for the mechanical coupler when driven by a vibrator with a prescribed plane circular tip area and applied with a specific static force. An appendix provides an example of a specific construction of a mechanical coupler.

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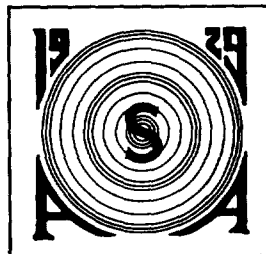
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FOREWORD

[This Foreword is not a part of American National Standard Mechanical Coupler for Measurement on Bone Vibrators ANSI S3.13-1987 (ASA Catalog No. 74-1987).]

This standard is a revision of American National Standard Artificial Headbone for the Calibration of Audiometer Bone Vibrators, S3.13-1972, developed originally to provide standardized mechanical impedance values for couplers used in the calibration of audiometer bone vibrators. These values were arrived at by comparing data published in the scientific literature between 1954 and 1959. Experience in the manufacture of mechanical couplers has shown that the design target was difficult to attain. In particular, the dependence of mechanical impedance on frequency did not closely correspond to that of physically realizable devices. The present revision has been developed with consideration of these problems and with tolerances based on quantity production of mechanical couplers in the intervening years. The values of mechanical impedance for the mechanical coupler, included in this revision, correspond to those proposed in the revision of International Electrotechnical Committee (IEC) Publication 373.

Further experimental work on the mechanical impedance of the human headbone is encouraged, especially investigations to combine systematically results obtained in several laboratories. Such results could provide a set of physical parameters that is more representative of the mechanical impedance of the human headbone.

Future study and review of basic impedance data may permit development of a more stable and reproducible mechanical coupler that is a closer representation of the human headbone.

This standard was developed under the jurisdiction of Accredited Standards Committee S3, Bioacoustics, using the American National Standards Institute (ANSI) Accredited Standards Committee Procedure. The Acoustical Society of America holds the Secretariat for Accredited Standards Committee S3, Bioacoustics.

Accredited Standards Committee S3, Bioacoustics, under whose jurisdiction this standard was developed, has the following scope:

Standards, specifications, methods of measurement and test, and terminology, in the fields of psychological and physiological acoustics, including aspects of general acoustics, shock, and vibration which pertain to biological safety, tolerance, and comfort.

At the time this standard was submitted to Accredited Standards Committee S3, Bioacoustics, for approval, the membership was as follows:

L. A. Wilber, *Chairman*
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FOREWORD

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Working Group S3-43, Calibration of Bone Vibrators, which assisted Accredited Standards Committee S3, Bioacoustics, in the development of this standard, has the following membership:

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Suggestions for improvements in this standard will be welcomed. They should be sent to the Standards Manager, Standards Secretariat, Acoustical Society of America, 335 East 45th Street, New York, NY 10017-3483.

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