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AMERICAN NATIONAL STANDARD

Methods for Manual Pure-Tone Threshold Audiometry

Secretariat:

Acoustical Society of America

Approved on April 8, 2004:

American National Standards Institute, Inc.

Abstract

This Standard provides a procedure for pure-tone audiometry that will serve the needs of persons conducting threshold measurements in industry, schools, medical settings, and other areas where valid audiometric threshold measurements are needed.

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Methods for Manual Pure-Tone Threshold Audiometry

ANSI S3.21-2004

Accredited Standards Committee S3, Bioacoustics

Standards Secretariat
Acoustical Society of America
35 Pinelawn Road, Suite 114 E
Melville, NY 11747-3177

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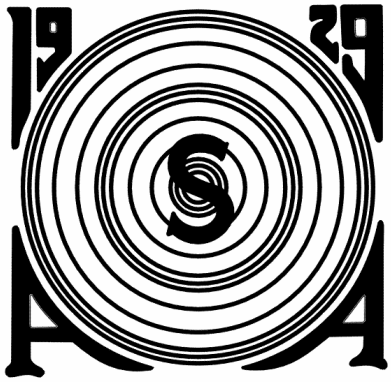

ANSI S3.21- 2004
(Revision of ANSI S3.21-1978)

AMERICAN NATIONAL STANDARD

Methods for Manual Pure-Tone Threshold Audiometry

Secretariat

Acoustical Society of America

Approval date: April 8, 2004
American National Standards Institute, Inc.

Abstract

This Standard is a revision of the American National Standard ANSI S3.21-1978 Methods for Manual Pure-Tone Threshold Audiometry.

This Standard provides a procedure for pure-tone audiometry that will serve the needs of persons conducting threshold measurements in industry, schools, medical settings, and other areas where valid audiometric threshold measurements are needed.

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Foreword

[This foreword is for information only and is not an integral part of ANSI S3.21-2004 American National Standard Methods for Manual Pure-Tone Threshold Audiometry.]

This American National Standard was developed and approved by Accredited Standards Committee S3, under operating procedures approved by the American National Standards Institute (ANSI). Accredited Standards Committee S3, Bioacoustics 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.*

This second edition replaces ANSI S3.21-1978 American National Standard Methods for Manual Pure-Tone Threshold Audiometry. It has been revised to include current standard references which appear in the text and other types of earphones (insert and circumaural) to be used to elevate collapsing ear canals (see clause 4.1 note). All other changes are purely formative or editorial and do not change the technical intent of this standard.

This American National Standard presents procedures for accomplishing manual hearing-threshold measurement with pure tones that are applicable in a wide variety of settings.

Although the standard has been written to aid in the accomplishment of a measurement, it is appropriate to point out that it differs from other measurement techniques in that it deals with human behavior. Rigid adherence to the procedure in every circumstance will not necessarily produce effective results. See Clause 1.3 for more detail.

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

R.F. Burkard, *Chair*

C.A. Champlin, *Vice Chair*

S. Blaeser, *Secretary*

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..... C.A. Champlin (*Alt*.)

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International Hearing Society ..... . K. LaFerle

John Deere ..... L. DeVries

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..... S.D. Smith *(Alt.)*

U.S. Department of Transportation ..... E.D. Sussman
..... T. Raslear *(Alt.)*

Individual Experts of Accredited Standards Committee S3, Bioacoustics, were:

J.R. Bareham	K.D. Kryter	P.D. Schomer
R.W. Benson	R. McKinley	H.E. von Gierke
A.J. Brammer	C.W. Nixon	D.E. Wasserman
A.J. Campanella	D.D. Reynolds	L.A. Wilber
J.L. Fletcher	J.D. Royster	W.A. Yost
T.A. Frank	L.H. Royster	

Working Group S3/WG35, Audiometers, which assisted Accredited Standards Committee S3, Bioacoustics, in the preparation of this Standard, had the following membership at the time of final approval:

R.L. Grason, *Chair*

S. Benson	T. Frank	R. Veillette
J. Foreman	R. Grason	L. Wilber
S. Fournier	T. Letowski	

Suggestions for improvement will be welcomed. Send suggestions for improvement to Accredited Standards Committee S3, Bioacoustics, in care of the ASA Standards Secretariat, 35 Pinelawn Road, Suite 114E, Melville, New York 11747-3177. Telephone: +1 631-390-0215; FAX: +1 631-390-0217. E-mail: asastds@aip.org

American National Standard

Methods for Manual Pure-Tone Threshold Audiometry

1 Scope

1.1 Purpose of standard

Pure-tone threshold audiometry is the procedure used in the assessment of an individual's threshold of hearing for pure tones. Pure-tone threshold audiometry includes manual air-conduction measurements at octave intervals from 250 through 8000 Hz and at intermediate frequencies as needed. When abrupt differences of 20 dB or more occur between adjacent octave frequencies, additional frequencies may be included at the discretion of the tester. Bone-conduction measurements may be carried out if indicated by the test requirements at octave intervals from 250 through 4000 Hz. Also, when required, masking is to be used. The purpose of this standard is to present procedures for conducting manual pure-tone threshold audiometry whose use will minimize intertest differences based on test method.

1.2 Limit of standard

This standard is limited to a description of the measurement method of manual pure-tone threshold audiometry. Hearing screening techniques are outside its purview.

1.3 Modifications of standard procedures

The procedures described in this standard are usable in a wide variety of circumstances. However, certain individuals, such as young children, developmentally delayed persons, uncooperative persons, or neurologically handicapped persons may require modifications of the procedures. In any instance where response behavior is apt to veer from the usual, the procedure should be modified; however, the modification shall be readily identified and specified by the user, the modifications shall be noted in the reporting of results. Another kind of modification is exemplified as follows: The user of the standard who functions in a work setting which requires monitoring audiometry or diagnostic audiometry will use instrumentation which pertains to that particular setting and the frequencies at which threshold is measured will be dictated by that situation. The choice of frequencies will depend on the purpose for which the procedure is being used.

1.4 Source

The procedures detailed in this standard are adapted from those described in the Draft Guidelines for Manual Pure-Tone Audiometry (Wilson *et al*. 1974) and the Guidelines for a Training Program for Audiometric Technicians (NASNRC, 1973).

2 Normative References

The following Standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.