

AES standard for acoustics - Methods of measuring and specifying the performance of loudspeakers for professional applications - Drive units

Abstract

This document is a recommended practice for describing and specifying loudspeaker components used in professional audio and sound-reinforcement systems. These components include high-frequency drivers and low-frequency drivers. Specifications are given for describing frequency response, impedance, distortion, and power handling.

An AES standard implies a consensus of those directly and materially affected by its scope and provisions and is intended as a guide to aid the manufacturer, the consumer, and the general public. The existence of an AES standard does not in any respect preclude anyone, whether or not he or she has approved the document, from manufacturing, marketing, purchasing, or using products, processes, or procedures not in agreement with the standard. Prior to approval, all parties were provided opportunities to comment or object to any provision. Attention is drawn to the possibility that some of the elements of this AES standard or information document may be the subject of patent rights. AES shall not be held responsible for identifying any or all such patents. Approval does not assume any liability to any patent owner, nor does it assume any obligation whatever to parties adopting the standards document. This document is subject to periodic review and users are cautioned to obtain the latest edition. Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Contents

1 Scope	4
2 Normative references	4
3 Definitions	5
4 Conditions for measurements	7
4.1 Rated conditions	7
4.2 Normal measuring conditions	7
4.3 Requirements for test signals	7
4.4 Unwanted acoustical and electrical noises	8
4.5 Distance of the measuring microphone from the loudspeaker	8
4.6 Measuring equipment	8
4.7 Mounting	8
5 Characteristics to be specified, methods of measurements and presentation of results	9
5.1 Characteristics and methods of measurement	9
5.2 Method of measurement of frequency response using a plane-wave tube	11
5.3 Method of measurement for maximum usable continuous output sound-pressure level	11
5.4 Methods of measurement of Thiele-Small parameters	12
5.5 Measurement of maximum useful displacement of the voice-coil or equivalent element	14
5.6 Directional responses	14
6 Power-Handling	14
6.1 Test Conditions and Equipment	14
6.2 Test procedure	15
6.3 Displacement limit	15
6.4 Thermal test information	15
6.5 Low Resonance	15
Annex A: (Informative) Informative references	16
Annex B (Informative) Crest Factor	17
B.1 Crest Factor of Random Noise	17
B.2 Signal Organization	17
B.3 Implications for Loudspeaker Testing	19

This foreword is not part of the AES2-2012 *AES standard for acoustics - Methods of measuring and specifying the performance of loudspeakers for professional applications - Drive units*

Foreword to 1984 edition

The purpose of this document is to recommend methods of specifying the performance of loudspeaker components used in music, speech, and fixed-signal (such as siren alert) systems. It is needed so that these components may be compared on an equal basis, by methods which directly relate to their specific real use. Previously, no such practice or standard existed for this class of acoustical product. Tests and nomenclature used in this document are compatible with IEC Standard, Publication 268-5 (1972) and Supplement 268-5A (1980).

The document presented here is a complete recommendation.

This committee was suggested and formed by John Eargle in 1975 November, and the following members have contributed to the processing and approval of this Recommended Practice:

Clifford Henricksen, *Chairman*

J. Robert Ashely, George Augspurger, George Brettell, Bob Davis, Howard Durbin, David Klepper, Bart Locanthi, Manny Mohageri, Harold Mosier, Richard Negus, Daniel Queen, Ludwig Sepmeyer, and Melvin Sprinkle.

Foreword to 2012 edition

This document substantially revises and updates AES2-1984.

The members of the writing group that developed this document in draft were: D. Blore, J. Brusi, M. Buck, R. Campbell, D. Carlstrom, D. Cinanni, P. Conejos, E. Geddes, D. Gunness, C. Hughes, R. Hagenbach, S. Hutt, D. Keele, W. Klippel, H. van Maanen, B.C. Olson, S. Orth, R. Sauro, E. Simon, R. Small, J.S. Stewart, J. Stratman, C.J. Struck, A. Voishvillo, J. Woodgate.

Steve Hutt

Chair, Working Group SC-04-03 on Loudspeaker Modeling and Measurement

Note on normative language

In AES standards documents, sentences containing the word “shall” are requirements for compliance with the document. Sentences containing the verb “should” are strong suggestions (recommendations). Sentences giving permission use the verb “may”. Sentences expressing a possibility use the verb “can”.

Document preview:
for full document, go to
www.aes.org/publications/standards