Reaffirmed by ANSI
July 29, 1997

Reaffirmed by ANSI
October 29, 2002

Reaffirmed by ANSI
October 19, 2007

ANSI S12.12-1992
(ASA 104-1992)

Reaffirmed by ANSI
September 5, 2012

# AMERICAN NATIONAL STANDARD
# Engineering Method for the Determination of Sound Power Levels of Noise Sources Using Sound Intensity

## ACCREDITED STANDARDS COMMITTEE S12, NOISE

ABSTRACT

This standard describes a method for *in situ* determination of the sound power level of noise sources in indoor or outdoor environments using sound intensity measurements. The standard contains information on instrumentation, installation and operation of the source, procedures for the selection of a measurement surface, methods for the sampling of sound intensity on the measurement surface, procedures for the calculation of sound power level, and techniques that can be used to qualify the measurement environment.

## AMERICAN NATIONAL STANDARDS ON ACOUSTICS

The Acoustical Society of America provides the Secretariat for Accredited Standards Committees S1 on Acoustics, S2 on Mechanical Shock and Vibration, S3 on Bioacoustics, and S12 on Noise. These committees have wide representation from the technical community (manufacturers, consumers, and general-interest representatives). The standards are published by the Acoustical Society of America through the American Institute of Physics as American National Standards after approval by their respective standards committees and the American National Standards Institute.

These standards are developed and published as a public service to provide standards useful to the public, industry, and consumers, and to Federal, State, and local governments.

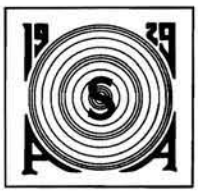
**This standard was approved by the American National Standards Institute as ANSI S12.12-1992 on 27 January 1992.**



The American National Standards Institute, Inc. (ANSI) is the national coordinator of voluntary standards development and the clearing house in the U.S. for information on national and international standards.

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

The Acoustical Society of America (ASA) is an organization of scientists and engineers formed in 1929 to increase and diffuse the knowledge of acoustics and to promote its practical applications.




**Published by the Acoustical Society of America through the American Institute of Physics**

# FOREWORD

[This Foreword is not a part of the American National Standard Engineering Method for the Determination of Sound Power Levels of Noise Sources Using Sound Intensity, ANSI S12.12-1992 (ASA Catalog No. 104-1992).]

This American National Standard contains procedures for the determination of the sound power of noise sources from sound intensity measurements. Previous sound power determinations required special facilities such as anechoic, hemi-anechoic, or reverberation rooms and the estimation of the sound power of sources from sound pressure measurements which resulted in various errors. Using this new standard, the sound power of noise sources can be directly determined from sound intensity measurements made *in situ* even when intrusive background noise is present in the environment. The approaches in this standard are useful also for the relative ranking of machinery noise sources in terms of sound power.

This standard was developed using the American National Standards Institute (ANSI) Accredited Standards Committee Procedure under the Secretariat of the Acoustical Society of America.

Accredited Standards Committee S12, Noise, under whose jurisdiction this standard was developed, has the following scope:

> Standards, specifications, and terminology in the field of acoustical noise pertaining to methods of measurement, evaluation, and control, including biological safety, tolerance, and comfort, and physical acoustics as related to environmental and occupational noise.

At the time this standard was submitted to Accredited Standards Committee S12, Noise, for approval, the membership was as follows:

W. Melnick, *Chairman*
R. Hillquist, *Vice-Chairman*
A. Brenig, *Secretary*

**Acoustical Society of America** • W. Melnick, R. Hillquist (*Alt*)
**Air-Conditioning and Refrigeration Institute** • R. Harold, H. C. Skarbek (*Alt*)
**Aluminum Company of America (ALCOA)** • S. I. Roth
**American Academy of Otolaryngology, Head and Neck Surgery, Inc.** • R. F. Naunton, L. A. Michael (*Alt*)
**American Industrial Hygiene Association** • C. D. Bohl
**American Occupational Medical Association** • T. R. Hatfield, J. Sataloff (*Alt*)
**American Otological Society, Inc.** • J. Tonndorf
**American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)** • H. S. Pei, G. F. Hohn (*Alt*)
**American Speech-Language-Hearing Association** • S. J. Barry, V. W. Byers (*Alt*)
**American Welding Society** • vacant, M. E. Kennebeck (*Alt*)
**Audio Engineering Society, Inc.** • M. R. Chial
**Bruel & Kjaer Instruments, Inc.** • G. C. Michel (*Alt*)
**Compressed Air and Gas Institute (CAGI)** • J. H. Addington
**Computer and Business Equipment Manufacturers Association** • L. F. Luttrell
**Electric Light and Power Group** • C. E. Hickman, M. C. Mingoia (*Alt*)
**Fastener Industry Noise Control Research Program** • E. H. Toothman, J. C. McMurray (*Alt*)