AS 1633—1985

Australian Standard®

Acoustics—Glossary of terms and related symbols

This Australian standard was prepared by Committee AK/1, Terms, Units and Symbols. It was approved on behalf of the Council of the Standards Association of Australia on 25 June 1985, and published on 6 September 1985.

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The following interests are represented on Committee AK/1:

Audiological Society of Australia

CSIRO, Division of Building Research

Environment Protection Authority, Vic.

Monash University

Royal Australian Institute of Architects

State Pollution Control Commission, N.S.W.

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PREFACE

This edition of this standard was prepared by the Association's Committee on Terms, Units and Symbols, to supersede AS 1633 — 1974, Glossary of Acoustic Terms.

This standard takes into account documents currently available from the International Electrotechnical Commission and the International Organization for Standardization. Attention is drawn to the fact that this standard does not purport to be an exhaustive treatment of the subject.

The principal changes from the previous edition are as follows:

(a) The inclusion of many new terms that are related to the measurement of sound.

(b) The inclusion of an appendix that lists the symbols used in the standard (see Appendix B).

(c) Editorial changes in accordance with SAA editorial policy.

The use of the term 'noise' as a synonym for 'sound' (i.e. to denote sound of any kind) is now explicitly deprecated in acoustics, despite such usage in Middle English being recognized in most dictionaries.

In the science and practice of the control of noise (unwanted sound), a number of terms have been adopted using 'noise' as a prefatory modifier, e.g. noise dose, noise rating. The more general corresponding terms using 'sound' as a prefatory modifier have never come into usage, so are not included in the glossary. The use of the modifier 'noise' alone in these terms is justifiable because they are almost invariably applied to sound which is unwanted. Such usage is not to be regarded as interchangeability of the modifiers or terms, 'sound' and 'noise'.

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

for

ACOUSTICS—GLOSSARY OF TERMS, AND RELATED SYMBOLS

Term	Definition
absorption	*See* sound absorption *and* sound energy absorption coefficient
absorption loss	That part of the transmission loss due to dissipation either within the medium or attendant upon a reflection.
acceleration level	Twenty times the logarithm to the base 10 of the ratio of the magnitude of the vibratory acceleration to the reference magnitude of 1 μm/s^2. Symbol: L_a Unit symbol: dB
acoustic, acoustical	The adjectives 'acoustic' and 'acoustical' mean containing, producing, arising from, actuated by, related to, or associated with sound.

NOTE: 'Acoustic' is used when the term being qualified designates something that has the properties, dimensions, or physical characteristics associated with sound waves; 'acoustical' is used when the term being qualified does not designate explicitly something that has such properties, dimensions, or physical characteristics, e.g. pertaining to acoustics, the science.

Term	Definition
acoustic absorption coefficient	*See* sound energy absorption coefficient
acoustic calibrator	A device for applying a sound pressure of known level to the microphone or hydrophone, of a sound measuring system, for the purpose of calibration.
acoustic compliance	Reciprocal of the acoustic stiffness. (*See also* acoustic reactance) Symbol: C_a Unit symbol: m^3/Pa.rad
acoustic impedance	At a given surface: the complex ratio of the sound pressure to the volume velocity through that surface. (*See also* impedance *and* specific acoustic impedance) Symbol: Z_a Unit symbol: Pa.s/m^3 NOTE: $Z_a = R_a + jX_a$
acoustic interferometer	An instrument in which standing waves are established for the measurement of the characteristics of the medium or its boundaries.
acoustic mass	*See* acoustic reactance
acoustic inertia	Symbol: m_a Unit symbol: Pa.s^2/m^3.rad
acoustic mobility	*See* mobility
acoustic oscillation	Movement of a particle in an elastic medium about an equilibrium position.
acoustic radiation pressure	*See* radiation pressure
acoustic radiometer	An instrument for measuring acoustic radiation pressure by determining the unidirectional steady state force resulting from reflection or absorption of a sound wave at a boundary.
acoustic reactance	The imaginary component of an acoustic impedance. (*See also* impedance) Symbol: X_a Unit symbol: Pa.s/m^3 NOTE: The acoustic reactance is formed from two signed terms involving the acoustic mass (m_a) and acoustic stiffness (s_a). $X_a = \omega m_a - (s_a/\omega)$ where ω is the angular frequency. The term ωm_a is called the acoustic mass reactance and the term s_a/ω is called the acoustic stiffness reactance.
acoustic reciprocity theorem	In an acoustic system comprising a fluid medium having bounding surfaces S_1, S_2, S_3, ..., and subject to no impressed body forces, if two distributions of normal velocities v' and v'' of the bounding surfaces produce pressure fields p' and p'' respectively, throughout the region, then the surface integral of $p''v'$ - $p'v''$ over all the bounding surfaces S_1, S_2, S_3, ..., vanishes. (*See also* electro-acoustical reciprocity principle *and* reciprocity constant) NOTE: If the region contains only one simple source, the theorem reduces to the form ascribed to Helmholtz, viz in a region as described, a simple source at A produces the same sound pressure at another point B as would have been produced at A had the source been located at B.

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