



SLOVENSKI STANDARD
SIST EN 60804:1998
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Integrating-averaging sound level meters

Integrierende mittelwertbildende Schallpegelmesser

Sonomètres intégrateurs-moyenneurs

ITEH STANDARD PREVIEW
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Ta slovenski standard je istoveten z: **EN 60804:1994**

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17.140.50 Elektroakustika Electroacoustics

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EUROPEAN STANDARD

EN 60804

NORME EUROPEENNE

EUROPÄISCHE NORM

January 1994

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Supersedes HD 499 S1:1990

Descriptors: Electroacoustic equipment, acoustic measuring instruments,
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ENGLISH VERSION

Integrating-averaging sound level meters
(IEC 804:1985 + A1:1989)

Sonomètres
intégrateurs-moyenneurs
(CEI 804:1985 + A1:1989)

Integrierende mittelwertbildende
Schallpegelmesser
(IEC 804:1985 + A1:1989)

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This European Standard was approved by CENELEC on 1993-12-08.
CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations
which stipulate the conditions for giving this European Standard the status of
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Up-to-date lists and bibliographical references concerning such national standards
may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German).
A version in any other language made by translation under the responsibility of
a CENELEC member into its own language and notified to the Central Secretariat
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CENELEC members are the national electrotechnical committees of Austria, Belgium,
Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg,
Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B-1050 Brussels

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Ref. No. EN 60804:1994 E

FOREWORD

As a consequence of the IEC-CENELEC Agreement, HD 499 S1:1990 (IEC 804:1985 + A1:1989) was submitted to the CENELEC voting procedure for conversion into a European Standard.

The text of the International Standard was approved by CENELEC as EN 60804 on 8 December 1993.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1994-12-01
- latest date of withdrawal of conflicting national standards (dow) -

Annexes designated "normative" are part of the body of the standard. Annexes designated "informative" are given only for information. In this standard, annexes A, C and D are informative and annexes B and ZA are normative.

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ENDORSEMENT NOTICE

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The text of the International Standard IEC 804:1985 and its amendment 1:1989 was approved by CENELEC as a European Standard without any modification.

ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD
WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

NOTE : When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

IEC Publication	Date	Title	EN/HD	Date
50(801)	1984	International Electrotechnical Vocabulary (IEV) Chapter 801: Acoustics and electro-acoustics	-	-
537	1976	Frequency weighting for the measurement of aircraft noise (D-weighting)	-	-
651	1979	Sound level meters	EN 60651	1994

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Other publication: <https://standards.iteh.ai/catalog/standards/sist/3ea98950-bb36-423d-8255-52d816e0e575/sist-en-60804-1998>

ISO 266:1975 - Acoustics - Preferred frequencies for measurements

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IEC STANDARD

Publication 804

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1985

Sonomètres intégrateurs-moyenneurs

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Integrating-averaging sound level meters

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INTEGRATING-AVERAGING SOUND LEVEL METERS

FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.
- 4) The IEC has not laid down any procedure concerning marking as an indication of approval and has no responsibility when an item of equipment is declared to comply with one of its recommendations.

iTeh STANDARD PREVIEW

PREFACE

This standard has been prepared by Sub-Committee 29C: Measuring Devices, of IEC Technical Committee No. 29: Electroacoustics.

The text of this standard is based upon the following documents:

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Six Months' Rule	Report on Voting
29C(CO)51	29C(CO)55, 55A and 55B

Further information can be found in the relevant Reports on Voting indicated in the table above.

The following IEC publications are quoted in this standard:

Publications Nos. 50(801) (1984): International Electrotechnical Vocabulary (IEV), Chapter 801: Acoustics and Electroacoustics.

537 (1976): Frequency Weighting for the Measurement of Aircraft Noise (D-weighting).

651 (1979): Sound Level Meters.

Other publication quoted:

ISO Standard 266 (1975): Acoustics — Preferred Frequencies for Measurements.

INTEGRATING-AVERAGING SOUND LEVEL METERS

1. Scope

1.1 General

This standard describes instruments for the measurement of frequency weighted and time averaged sound pressure levels. Optionally, sound exposure levels may be measured. This standard is consistent with the relevant requirements of IEC Publication 651: Sound Level Meters, but specifies additional characteristics which are necessary to measure the equivalent continuous sound pressure level, L_{eq} , of steady, intermittent, fluctuating and impulsive sounds.

Note. — Standardization of an instrument for the measurement of the equivalent continuous sound pressure level and optionally the sound exposure level does not imply that these quantities completely characterize the psychological and physiological effects of sound on man.

Though a complete integrating sound level meter is specified, the combination of a conventional sound level meter that satisfies IEC Publication 651 and an accessory or "plug-in" that provides the averaging capability is admissible if the complete system satisfies this standard.

The instrument is called "integrating-averaging sound level meter", but the short form "integrating sound level meter" or "averaging sound level meter" may also be used. In this standard, "integrating sound level meter" is used.

There are some important differences between the time averaging characteristics of an integrating sound level meter and those of a conventional sound level meter. These differences are discussed in Appendix A.

1.2 Types

This standard specifies integrating sound level meters of four degrees of accuracy, designated Types 0, 1, 2 and 3.

For each type, the specification for directional characteristics and frequency weighting and amplifier characteristics are identical to those of IEC Publication 651. Averaging and indicator specifications differ from IEC Publication 651 and it should be noted that they are identical for Types 2 and 3 instruments.

The mark "R" on the instrument, if any, indicates that this instrument is calibrated for diffuse field (see Sub-clauses 2.3.3 and 9.1).

1.3 Characteristics specified

1.3.1 This standard specifies the following characteristics and test methods for integrating sound level meters:

- a) integrating and averaging characteristics;
- b) indicator characteristics;
- c) overload sensing and indicating characteristics.

1.3.2 Integrating sound level meters shall also comply with the requirements in IEC Publication 651 as follows:

- a) directional characteristics (Clause 5);
- b) frequency weighting characteristics (Sub-clauses 6.1 and 6.2);
- c) sensitivity to various environments (Clause 8).

1.4 Tolerances

The specifications for Types 0, 1, 2 and 3 integrating sound level meters have the same centre values and differ only in the tolerances allowed. Tolerances broaden as the type number increases.

1.5 Tests specified

This standard specifies electrical and acoustical tests to verify compliance with the characteristics specified (see Sub-clause 1.3).

2. Object and general requirements

2.1 Object

The object of this standard is to ensure specified accuracy and stability of an integrating sound level meter and to reduce to the practical minimum any differences in equivalent measurements taken with instruments of various makes and models which satisfy the requirements of this standard.

2.2 Applications

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The Type 0 integrating sound level meter is intended as a laboratory reference standard. Type 1 is intended for laboratory use and for field use where the acoustical environment can be closely specified and/or controlled. The Type 2 integrating sound level meter is suitable for general field applications. Type 3 is intended primarily for field noise survey applications.

Typical applications for the integrating sound level meter are:

- a) measurement of industrial noise that could produce hearing damage or be annoying;
- b) measurement of community noise (traffic, residential, industrial sites, airports) that may be annoying or violate regulations;
- c) measuring the average sound pressure level around a noisy product or other sound source, in which case the integrating capability may be used to determine an average in space as well as time.

The integrating sound level meter is well suited for measurement of the equivalent continuous sound pressure level of impulsive sounds. Such impulsive sounds have high peak amplitude and duration as short as 1 ms.

Note. — The measurement of impulses with durations below 1 ms should be regarded as an extrapolation because testing is not required below 1 ms.

Integrating sound level meters intended for field use shall meet rigorous environmental specifications.

Integrating sound level meters are usually designed to be hand-held or bench mounted. It is anticipated, however, that units to be worn on a person may also become available.

2.3 General requirements

2.3.1 Frequency weighting

An integrating sound level meter shall have the frequency weighting characteristic designated A as specified in IEC Publication 651.

Other frequency weighting characteristics such as the C-weighting or Lin (Flat) weighting, specified in IEC Publication 651 or D-weighting as specified in IEC Publication 537: Frequency Weighting for the Measurement of Aircraft Noise (D-weighting), are optional.

2.3.2 Averaging

The integrating sound level meter shall be capable of measuring the equivalent continuous A-weighted sound pressure level (Sub-clause 3.3). Optionally, the integrating sound level meter may be capable of measuring sound exposure level (Sub-clause 3.4).

2.3.3 Calibration

The requirements of this standard may be applied to either free field calibration (Sub-clause 3.13) or diffuse field calibration (Sub-clause 3.14). If the instrument is calibrated for use in a diffuse field, it shall be marked "R" (see Sub-clause 11.1).

2.4 Method of use

Integrating sound level meters are used to measure many types of sound, under different conditions and for a variety of reasons. For each application, the measurement technique should be chosen and controlled carefully to obtain valid and consistent results. It is important to recognize that the method of use may have as much effect on a measurement as the quality of the instrument itself; errors will often result if the effect of the environment and (especially for hand-held instruments) the presence of the observer are ignored.

3. Definitions

3.1 For the definition of terms used in this standard, reference should be made to IEC Publication 50(801): International Electrotechnical Vocabulary (IEV), Chapter 801: Acoustics and Electroacoustics. Certain additional terms are given in IEC Publication 651 or are defined below.

3.2 *Frequency weighted sound pressure level*, in decibels (dB), is twenty times the logarithm to the base ten of the ratio of a weighted sound pressure to the reference sound pressure. The reference sound pressure is 20 μ Pa. The frequency weighting shall be indicated.