International Standard

ISO 16032

Acoustics — Measurement of sound pressure level from service equipment or activities in buildings — Engineering method

Acoustique — Mesurage du niveau de pression acoustique des équipements techniques ou activités dans les bâtiments — Méthode d'expertise

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Contents

Page

Foreword ... **iv**
Introduction ... **vi**
1 Scope ... **1**
2 Normative references ... **1**
3 Terms and definitions ... **1**
4 Measurement equipment ... **4**
5 Test method — General ... **4**
6 Measurement procedure ... **5**
6.1 General ... 5
6.2 Selection of the corner position for the microphone ... 6
6.3 Selection of the reverberant field positions of the microphone ... 6
6.4 Measurement of sound pressure levels ... 6
6.4.1 Measurement of the equivalent continuous sound pressure level ... 6
6.4.2 Measurement of the maximum sound pressure level ... 7
6.5 Averaging the sound pressure level ... 7
6.6 Determination of the background sound pressure level ... 7
6.7 Standardization or normalization of one–third–octave–band results ... 7
6.8 Calculation of *A*- and *C*-weighted values ... 8
6.9 Sound sources present in the room (additional measurements) ... 8
7 Measurement of reverberation time ... **8**
8 Correction for background noise ... **8**
9 Precision ... **9**
10 Test report ... **10**
Annex A (normative) ***A*-weighting and *C*-weighting correction values** ... **11**
Annex B (normative) **Operating conditions and operating cycles for measuring the maximum sound pressure level and the equivalent continuous sound pressure level** ... **12**
Annex C (informative) **Form for the expression of results** ... **19**
Bibliography ... **20**

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Foreword

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This document was prepared by Technical Committee ISO/TC 43, *Acoustics*, Subcommittee SC 2, *Building acoustics,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 126, *Acoustic properties of building elements and of buildings,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 16032:2004), which has been technically revised.

The main changes are as follows:

— terms and definitions have been revised;

— procedure to detect and average spatial and temporal variations of the sound has been revised;

— measurements can be performed to verify sound levels either from a specific service equipment or an activity in the building, with operating conditions described in Annex B or by national guidelines if such exist for a specific type of service equipment, e.g. lifts;

— title is updated to reflect that also sound from activities in the building can be measured according to this document, e.g. music sound from a restaurant or sports premises in the same building;

— measurements are performed in one–third–octave–bands;

— octave–band levels, without corrections for reverberation times or background noise may be measured or estimated from the one–third–octave–band levels and reported optionally, but they are not used to calculate the *A*-weighted and *C*-weighted sound pressure levels;

— standardization with respect to reverberation times applies to the 50 Hz to 5 000 Hz one–third–octave–bands;

— frequency range used to calculate the *A*-weighted and *C*-weighted sound pressure levels can include one–third–octave bands from 25 Hz to 10 000 Hz but shall always include the bands 50 Hz to 5 000 Hz;

— Annex C added providing an example form for the expression of results.

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Introduction

Many countries have building regulations intended to protect people from noise in their homes or workplaces. For the purpose of verification of compliance with such regulations, there is a need for a standardized method for the measurement of sound pressure levels from service equipment or activities in this building. This document specifies a procedure for such measurements, under specific operating conditions and operating cycles.

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Acoustics — Measurement of sound pressure level from service equipment or activities in buildings — Engineering method

1 Scope

This document specifies an engineering method for the measurement of sound pressure levels in rooms from service equipment installed in the building.

This document covers specifically measurements of sound from sanitary installations, mechanical ventilation, heating and cooling service equipment, lifts, rubbish chutes, heating devices, blowers, pumps and other auxiliary service equipment, and motor driven car park doors. It can also be applied to measurements of sounds from other types of equipment or activities within the building, e.g. noise from sport facilities or restaurants.

The measurement of noise from external sound sources generating air-borne or ground-borne noise in the building are not included in this document.

The methods are suitable for rooms with volumes of approximately 300 m^3 or less for instance, in dwellings, hotels, schools, offices and hospitals.

The methods are not intended for measurements in large auditoria or concert halls.

2 Normative references

The following documents are referred to in the text in such a way that some or all their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3382-2, *Acoustics — Measurement of room acoustic parameters — Part 2: Reverberation time in ordinary rooms*

IEC 60942, *Electroacoustics — Sound calibrators*

IEC 61260-1, *Electroacoustics — Octave-band and fractional-octave-band filters*

IEC 61672-1, *Electroacoustics — Sound level meters - Part 1: Specifications*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

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