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## **Acoustics — Declared noise emission values of information technology and telecommunications equipment**

*Acoustique — Valeurs déclarées d'émission acoustique des équipements liés aux technologies de l'information et aux télécommunications*



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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html)

This document was prepared by Technical Committee ISO/TC 43, *Acoustics*, Subcommittee SC 1, *Noise*.

This second edition cancels and replaces the first edition (ISO 9296:1988), which has been technically revised, and in addition contains the following changes:

- the Normative references clause has been updated and certain references moved to the Bibliography;
- a new [Annex A](#) has been added;
- a Bibliography has been added.

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## Introduction

Information on acoustical noise emission of information technology and telecommunications equipment (ITT equipment) is needed by users, planners, manufacturers and authorities. This information is required for comparison of the noise emissions from different products and for installation acoustics planning and may be used for workplace noise immission requirements.

In order for equipment noise emission data to be useful, uniform methods are necessary for the following purposes:

- Measurement of noise emission values

ISO 7779 specifies procedures for determining sound power level based on ISO 3741[1] ISO 3744[2] and ISO 3745[3] (reverberation test room or hemi-anechoic room) and emission sound pressure level based on ISO 11201.[7]

- Determination of the noise emission values to be declared

ISO 4871[4] gives guidelines for the preparation of standards for deriving noise emission values for declaration purposes, and the ISO 7574 series[5,6] gives statistical methods for such determination. This document is based on the above-mentioned International Standards.

- Presentation of declared noise emission values

For the presentation of declared noise emission values, it is of prime importance to declare A-weighted sound power levels,  $L_{WA}$ . It is recognized, however, that users still desire information on A-weighted emission sound pressure levels,  $L_{pA}$ . Therefore, this document provides methods for declaration of both quantities. In the preparation of this document, divergent opinions have been found between various national and international organisations as to the most useful way of presenting noise emission values. In order to avoid any misunderstanding between presentation of sound power levels (re 1 pW) in decibels and emission sound pressure levels (re 20 µPa) in decibels, this document expresses sound power level values to be declared in bels and emission sound pressure level values in decibels, to alleviate the divergent opinions mentioned.

As an option, methods for determination and presentation of subjective characteristics of noise emission are presented in [Annex C](#).

- Verification of declared noise emission values

ISO 7574-4[6] gives methods for the verification of a declared noise emission value. In this document, the procedure is restricted to verifying the statistical upper limit A-weighted sound power level,  $L_{WA,C}$ , only.

For continuity with ISO 9296:1988 and current practice, this document specifies bels as the unit for declaring sound power levels. It should be noted, however, that the decision has been made to change the unit to decibels in the next edition, and users of this document should begin to prepare for this transition.