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Second edition  
2014-06-01

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## **Acoustics — Noise emitted by machinery and equipment — Guidelines for the use of basic standards for the determination of emission sound pressure levels at a work station and at other specified positions**

*Acoustique — Bruit émis par les machines et équipements — Guide  
d'utilisation des normes de base pour la détermination des niveaux  
de pression acoustique d'émission au poste de travail et en d'autres  
positions spécifiées*



Reference number  
ISO 11200:2014(E)

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Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
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Published in Switzerland

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## Contents

	Page
<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>2</b>
<b>4 Emission sound pressure level at work stations and other specified positions</b> .....	<b>8</b>
4.1 Physical background.....	8
4.2 Difference between noise exposure level of persons and noise emission level.....	9
4.3 Difference between sound power level of machinery and sound pressure level.....	9
4.4 Reasons for determining the emission sound pressure level.....	9
4.5 How the source directivity is handled in the ISO 11201, ISO 11202, ISO 11203, ISO 11204 and ISO 11205 group.....	10
<b>5 Overview of the methods offered in the ISO 11201, ISO 11202, ISO 11203, ISO 11204 and ISO 11205 group for determining the emission sound pressure level at work stations and other specified positions</b> .....	<b>11</b>
<b>6 Selection of the most appropriate method from the group</b> .....	<b>15</b>
6.1 Quantities to be measured and determined.....	15
6.2 Considerations affecting choice of method.....	15
6.3 Considerations for the selection of the most appropriate method.....	18
6.4 Synopses.....	18
<b>7 Selection of specified positions</b> .....	<b>22</b>
<b>8 Treatment of measurement uncertainty in ISO 11201, 11202 and 11204</b> .....	<b>22</b>
<b>Annex A (informative) Test site and environmental correction <math>K_2</math> — Some guidance</b> .....	<b>24</b>
<b>Annex B (informative) Case studies</b> .....	<b>26</b>
<b>Bibliography</b> .....	<b>37</b>

## 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. [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. [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 meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 43, *Acoustics*, Subcommittee SC 1, *Noise*.

This second edition cancels and replaces the first edition (ISO 11200:1995), which has been technically revised. It also incorporates the Technical Corrigendum ISO 11200:1995/Corr.1:1997.

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## Introduction

**0.1** For many users of machinery and equipment, the control of noise is a major issue which requires effective exchange of acoustical information among the several parties concerned. These include the manufacturer, installer and user of the machinery or equipment. This acoustical information is obtained from measurements. The main flow of information goes from the manufacturer to the user.

These measurements are useful only if the conditions under which they are carried out are specified, if they yield defined acoustical quantities, and if they are carried out using standardized instruments.

Two quantities which complement one another can be used to describe the sound emission of machinery or equipment: the sound power level and the emission sound pressure level at a specified position. The International Standards which describe the basic methods of determining the sound power level are ISO 3740,<sup>[2]</sup> ISO 3741, ISO 3743 (all parts), ISO 3744, ISO 3745, ISO 3746 and ISO 3747 (determination from sound pressure level measurements), and ISO 9614-1, ISO 9614-2 and ISO 9614-3 (determination from sound intensity measurements). This International Standard introduces a group of five International Standards describing various methods for determining emission sound pressure levels of machinery and equipment taking into account possible situations for the source under test (mobile machine, fixed machine, various test rooms, various instrumentations, different kinds of work stations, etc.).

It is not the intention of this group of International Standards to describe procedures for measuring the occupational noise exposure of workers; for occupational noise exposure, see ISO 9612.<sup>[4]</sup>

**0.2** Emission sound pressure levels in conjunction with sound power levels are used for declaration of the noise emitted under the defined conditions, verification of declared values, comparison of the noise emitted by machinery of various types and sizes, comparison with limits specified in a purchasing contract or a regulation, engineering work to reduce the noise emission of machinery, and prediction of noise exposure at the specified positions.

Included in this group of International Standards are three, which describe procedures for measuring emission sound pressure levels directly, in different test environments (ISO 11201, ISO 11202 and ISO 11204), a fourth (ISO 11203), which gives procedures for determining emission sound pressure levels from the sound power level and a fifth (ISO 11205), which gives a procedure for determining the emission sound pressure level from measured values of the sound intensity level.

**0.3** In general, these sound pressure levels are different from those which occur if the machinery or equipment operates in its installed surroundings, where the environment influences the sound pressure level at work stations or other specified positions. The selection of standards for the determination of the sound power level can, for practical reasons, have consequences on the selection of standards for the determination of the emission sound pressure level. It is preferable to make the choice of standards concurrently with respect to the two noise emission quantities.

**0.4** Standards in the ISO 11201, ISO 11202, ISO 11203, ISO 11204 and ISO 11205 group are often used in practice through their reference in standardized noise test codes (see [3.25](#)). If a particular noise test code exists for a family of machinery, it is intended that it be used. For drafting a noise test code, it is recommended to be familiar with ISO 12001.<sup>[6]</sup>

**0.5** The reasons for revising the ISO 11201, ISO 11202, ISO 11203, ISO 11204 and ISO 11205 group were manifold:

- the need arose to introduce a grade 1 method into the group in order to enhance the similarity with the ISO 3741, ISO 3743 (all parts), ISO 3744, ISO 3745, ISO 3746 and ISO 3747 group of International Standards on the determination of sound power level;
- feedback from experience with the use of the group showed that the ISO 11202 method gave more precise results than initially thought, hence the introduction into ISO 11202 of the possibility to get grade 2 results;
- as source directivity plays a key role with regard to the emission sound pressure level, pragmatism led to introduce this parameter into the ISO 11202 and ISO 11204 methods;

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- as measurement uncertainty was becoming a more and more central issue, the need arose to address the issue again in the light of the experience gained with the use of ISO/IEC GUIDE 98-3.

No research was carried out in order to revise the ISO 11201, ISO 11202, ISO 11203, ISO 11204 and ISO 11205 group. Only existing knowledge was used.