

Noise emitted by computer and business equipment —

Part 3: Method for determining and verifying declared noise emission values

[ISO title: Acoustics — Declared noise emission values of
computer and business equipment]

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Environment and Pollution Standards Policy Committee (EPC/-) to Technical Committee EPC/1, upon which the following bodies were represented:

- Association of Consulting Engineers
- British Broadcasting Corporation
- British Occupational Hygiene Society
- British Telecommunications plc
- Department of Health and Social Security
- Department of the Environment (Building Research Establishment)
- Department of Trade and Industry (Air Division)
- Department of Trade and Industry (National Physical Laboratory)
- Engineering Equipment and Materials Users' Association
- Health and Safety Executive
- Incorporated Association of Architects and Surveyors
- Institute of Acoustics
- Institute of Occupational Hygienists
- Institute of Physics
- Institute of Sound and Vibration Research
- Institution of Civil Engineers
- Institution of Electronic and Radio Engineers
- Royal Institute of British Architects
- Transmission and Distribution Association (BEAMA Ltd.)

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

- AFRC Institute of Engineering Research
- Advanced Manufacturing Technology Research Institute
- Agricultural Engineers' Association
- British Cement Association
- British Compressed Air Society
- British Hydromechanics Research Association
- British Steel Corporation
- Business Equipment and information Technology Association
- Construction Industry Research and Information Association
- Department of Trade and Industry (National Engineering Laboratory)
- Federation of Associations of Specialists and Sub-Contractors
- Federation of Manufacturers of Construction Equipment and Cranes
- Federation of Piling Specialists
- Hevac Association
- Institution of Mechanical Engineers
- Institution of Production Engineers
- Rotating Electrical Machines Association (BEAMA Ltd.)
- Society of Motor Manufacturers and Traders Ltd.

This British Standard, having been prepared under the direction of the Environment and Pollution Standards Policy Committee, was published under the authority of the Board of BSI and comes into effect on 29 September 1989

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National foreword

This Part of BS 7135 has been prepared under the direction of the Environment and Pollution Standards Policy Committee and is identical with ISO 9296:1988, “Acoustics — Declared noise emission values of computer and business equipment” published by the International Organization for Standardization (ISO). ISO 9296 was prepared by Subcommittee 1, Noise, of ISO Technical Committee 43, Acoustics, with the active participation and approval of the UK.

BS 7135 at present comprises the following Parts:

- Part 1: Method of measurement of airborne noise;
- Part 2: Method of measurement of high-frequency noise;
- Part 3: Method for determining and verifying declared noise emission values.

Terminology and conventions. The text of the International Standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following.

The comma has been used as a decimal marker. In British Standards it is current practice to use a full point on the baseline as a decimal marker.

Wherever the words “International Standard” or “ISO 9296” appear, referring to this standard, they should be read as “British Standard” or “this Part of BS 7135” respectively.

Cross-references

International Standard	Corresponding British Standard
	BS 6805 <i>Statistical methods for determining and verifying stated noise emission values of machinery and equipment</i>
ISO 7574-1:1985	Part 1:1987 <i>Glossary of terms</i> (Identical)
ISO 7574-2:1985	Part 2:1987 <i>Method for determining and verifying stated values for individual machines</i> (Identical)
ISO 7574-4:1985	Part 4:1987 <i>Methods for determining and verifying stated values for batches of machines</i> (Identical)
ISO 7779:1988	BS 7135 <i>Noise emitted by computer and business equipment</i> Part 1:1989 <i>Method of measurement of airborne noise</i> (Identical)

The Technical Committee has reviewed the provisions of ISO 4871, to which references are made in the text, and has decided that they are acceptable for use in conjunction with this standard.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

0 Introduction

Information on acoustic noise emission of computers and business 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 relating to workplace noise exposure requirements.

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

- Measuring noise emission values

ISO 7779 specifies uniform methods for measuring noise emission from computers and business equipment when operating under specified conditions which are typical of actual use.

- Determining the noise emission value to be declared

ISO 4871 and its Annex A give guidelines for the preparation of standards for deriving noise emission values for declaration purposes, and ISO 7574 gives statistical methods for such determination.

- Presentation of declared noise emission values

For the presentation of declared noise emission values, it is of prime importance to declare sound power levels, L_{WA} . It is recognized, however, that users still desire information on sound pressure levels, L_{pA} . Therefore, this International Standard specifies that both quantities shall be declared. In order to avoid any misunderstanding between presentation of sound power levels in decibels (reference: 1 pW) and sound pressure levels in decibels (reference: 20 μ Pa), this International Standard expresses sound power level emission values in bels and sound pressure level emission values in decibels.

Optional methods for determination and presentation of subjective characteristics of noise emission are presented in Annex B.

- Verification of declared noise emission values

ISO 7574 gives methods for the verification of a declared noise emission value. In that International Standard the procedure is restricted to verifying declared sound power levels only.

1 Scope and field of application

This International Standard applies to computer and business equipment.

This International Standard specifies

- the method for determining the declared noise emission values;
- acoustical and product information to be given in technical documents supplied to users by the manufacturer;
- the method for verifying the declared noise emission values given by the manufacturers.

The uniform methods in this International Standard use the noise data obtained in accordance with ISO 7779 and the procedures specified in ISO 4871 and ISO 7574.

The basic declared noise emission values are the declared A-weighted sound power level, L_{WA} (a statistical maximum value corresponding to L_c in ISO 7574), and the declared A-weighted sound pressure level, L_{pAm} (a mean value), at the operator or bystander positions.

The declared A-weighted sound power level, L_{WA} , permits comparison of noise emissions between different products and permits predictions of installation or workplace noise exposure levels¹⁾.

Although the most useful quantity for calculating exposure levels due to one or more sound sources is usually the declared A-weighted sound power level of the individual source(s), the declared A-weighted sound pressure level, L_{pAm} , may be used to estimate the exposure level in the immediate vicinity of an isolated piece of equipment.

To avoid confusion between sound power levels and sound pressure levels, the A-weighted sound power level is declared in bels and the A-weighted sound pressure level is declared in decibels.

2 References

ISO 4871, *Acoustics — Noise labelling of machinery and equipment*.

ISO 7574-1, *Acoustics — Statistical methods for determining and verifying stated noise emission values of machinery and equipment — Part 1: General considerations and definitions*.

ISO 7574-2, *Acoustics — Statistical methods for determining and verifying stated noise emission values of machinery and equipment — Part 2: Methods for stated values for individual machines*.

¹⁾ If the declared A-weighted sound power level, L_{WA} , in bels (B), is to be used for the determination of installation noise levels, or for comparison with the declared A-weighted sound power levels in decibels (dB) for machines other than computer and business equipment, the value of L_{WA} in bels is multiplied by ten to obtain its value in decibels, using the identity $1\text{ B} = 10\text{ dB}$.