DANSK STANDARD

DS/EN ISO 266

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Akustik
Normalfrekvenser

Acoustics – Preferred frequencies

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Nationalt forord

Denne publikation har status som dansk standard. Den er identisk med Europæisk Standard EN ISO 266:1997 og International Standard ISO 266:1997.

National foreword

This publication is approved as a Danish standard. It is identical with European Standard EN ISO 266:1997 and International Standard ISO 266:1997.

EUROPEAN STANDARD **EN ISO 266**

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Descriptors: See ISO document

English version

Acoustics - Preferred frequencies (ISO 266:1997)

Acoustique - Fréquences normales (ISO 266:1997)

Akustik - Normfrequenzen (ISO 266:1997)

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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 CEN member.

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CEN

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

Central Secretariat: rue de Stassart,36 B-1050 Brussels

Ref. No. EN ISO 266:1997 E

Foreword

The text of the International Standard ISO 266:1997 has been prepared by Technical Committee ISO/TC 43 "Acoustics" in collaboration with Technical Committee CEN/TC 211 "Acoustics", the secretariat of which is held by DS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 1997, and conflicting national standards shall be withdrawn at the latest by November 1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 266:1997 was approved by CEN as a European Standard without any modification.

INTERNATIONAL STANDARD

ISO 266

Second edition
1997-04-01

Acoustics — Preferred frequencies

Acoustique — Fréquences normales

Reference number
ISO 266:1997(E)

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 266 was prepared by Technical Committee ISO/TC 43, *Acoustics*.

This second edition cancels and replaces the first edition (ISO 266:1975), which has been technically revised.

Annex A of this International Standard is for information only.

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Introduction

This International Standard specifies a series of preferred frequencies in order to provide a common basis for comparing the results of acoustical measurements.

The frequency series is referred to the reference frequency of 1 000 Hz, which is also the reference frequency for the definition of the phon (see ISO 31-7).

The specification of the preferred frequency series reduces to a minimum the number of frequencies at which acoustical data need to be tabulated. Also measurement equipment may be specifically constructed for these frequencies.

The specified series of preferred frequencies uses powers of 10 and is therefore especially convenient for extensions into the infrasonic and ultrasonic (frequency) ranges. Another series of frequencies that is in use is based on the definition of the octave as the frequency ratio 1:2. The frequencies of this series are calculated as powers of two (IEC 1260 base-two series).

Strictly, these two series are incompatible. However the base-two series may be accepted as a sufficient approximation to the base-ten series because of the fact that $2^{1/3} = 1{,}259\,9\ldots$ is very nearly the same as $10^{1/10} = 1{,}258\,9\ldots$

Practical considerations make some additional rounding desirable: Thus 500 Hz is listed instead of 501,187 233... Hz, which is the exact frequency from the base-ten series. The calculated value of the exact frequency expressed to five significant figures is given in the second column of table 1. In this way, the maximum individual deviation, in the frequency range 20 Hz to 20 000 Hz, between the rounded preferred frequencies and the calculated frequencies for the base-ten and base-two series is 0,94 % and 1,59 %, respectively.

Acoustics — Preferred frequencies

1 Scope

This International Standard specifies preferred frequencies for acoustical measurements. The preferred frequencies are based on the R10 series of preferred numbers in ISO 3 and the reference frequency of 1 000 Hz.

For most acoustical measurements and presentations of data, a frequency spacing based on a constant percentage increment is generally preferred and the test frequencies then form a geometric series. For certain acoustical measurements, a constant frequency increment is a suitable spacing.

The International Standard deals with the geometric series and is not intended to apply to cases where a constant frequency increment, or other particular spacing, would be more suitable, or where there may be good reasons for the adoption or retention of other frequencies.

This International Standard does not deal with:

— frequencies for music;

— all audiometric frequencies;

— series other than R10 from ISO 3.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 3:1973, *Preferred numbers — Series of preferred numbers.*

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 exact frequency: Frequency, expressed in hertz, which is calculated from the formula:

$$f = 10^{n/10} f_r$$

where f_r is the reference frequency 1 000 Hz and n is an integer, positive or negative.

3.2 calculated frequency: Frequency approximating to the exact frequency, expressed to five significant figures.

3.3 preferred frequency: Frequency equal in magnitude to one of the R10 series of preferred numbers defined in ISO 3.