SLOVENSKI STANDARD
SIST EN 61012:2002

01-september-2002

Filters for the measurement of audible sound in the presence of ultrasound (IEC 61012:1990)

Filters for the measurement of audible sound in the presence of ultrasound

Filter für die Messung von hörbarem Schall im Beisein von Ultraschall

Filtres pour la mesure des sons audibles en présence d'ultrasons

Ta slovenski standard je istoveten z: **EN 61012:1998**

ICS:

17.140.50 Elektroakustika Electroacoustics

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

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Descriptors: Electroacoustic equipment, acoustic measuring instruments, sound level meters, acoustic measurement, ultrasonic frequencies, weighing filters, specifications, electrical properties, frequency responses, environments, instrument sensitivity, marking, technical notices

English version

Filters for the measurement of audible sound in the presence of ultrasound (IEC 61012:1990)

Filtres pour la mesure des sons audibles en présence d'ultrasons (CEI 61012:1990)

Filter für die Messung von hörbarem Schall im Beisein von Ultraschall (IEC 61012:1990)

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CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of the International Standard IEC 61012:1990, prepared by IEC TC 29, Electroacoustics, was submitted to the formal vote and was approved by CENELEC as EN 61012 on 1998-04-01 without any modification.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1999-03-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1999-03-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annex ZA is normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61012:1990 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE: When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60651	1979	Sound level meters	EN 60651	1994
ISO 266	1975[1)]	Acoustics Preferred frequencies for measurements	-	-

1) Replaced by ISO 266:1997.

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Filtres pour la mesure des sons audibles en présence d'ultrasons

Filters for the measurement of audible sound in the presence of ultrasound

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

FILTERS FOR THE MEASUREMENT OF AUDIBLE SOUND IN THE PRESENCE OF ULTRASOUND

FOREWORD

1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.

2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.

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4) The IEC has not laid down any procedure concerning marking as an indication of approval and has no responsibility when an item of equipment is declared to comply with one of its recommendations.

PREFACE

This standard has been prepared by IEC Technical Committee No. 29: Electroacoustics.

The text of this standard is based on the following documents:

Six Months' Rule	Report on Voting
29(CO)141	29(CO)154

Full information on the voting for the approval of this standard can be found in the Voting Report indicated in the above table.

The following IEC publication is quoted in this standard:

Publication No. 651 (1979): Sound level meters.

Other publication quoted:

ISO Standard 266 (1975): Acoustics - Preferred frequencies for measurements.

FILTERS FOR THE MEASUREMENT OF AUDIBLE SOUND IN THE PRESENCE OF ULTRASOUND

INTRODUCTION

The frequency response characteristics of sound level meters described in IEC 651 are not specified above 20 000 Hz. Consequently these instruments are not suitable for measuring the ultrasonic airborne energy emitted, for example, by ultrasonic cleaners, mechanical tools and welders which operate at frequencies above 20 000 Hz. Moreover, these instruments are also unsuitable for measuring the audio-frequency part of the sound emitted by such equipment, because the ultrasound will give rise to inflated readings if the frequency response of a particular sound level meter happens to extend to the operating frequency of the ultrasonic equipment.

The noise which is usually of interest with ultrasonic equipment arises from audible sounds produced by the ultrasonic process, for example, the cavitation noise which is audible in ultrasonic cleaners. To achieve reproducible measurements of the audible sound with existing sound level meters which comply with IEC 651, the practice is to use the A-weighting response in conjunction with a low-pass filter which has a very sharp cut-off above 20 000 Hz. The purpose of this standard is to specify the characteristics of such a low-pass filter.

When the filter characteristic is used with the sound level meter A-weighting specified in IEC 651, the resulting nominal values of the overall frequency response fall within the scope of Type 1 tolerances.

Where the measurement of the ultrasonic component frequencies is required, the practice is to measure the unweighted sound pressure level using a microphone system which is known to have a frequency response extending sufficiently, for example, to at least the operating frequency of the ultrasonic equipment. A narrow band or one-third octave band filter is usually included in the measuring chain. However, this standard is not concerned with the measurement of such components, nor with any possible hazard from them.

1. Scope

This standard specifies the electrical characteristics of a U-weighting filter mainly for use with sound level meters meeting the requirements of IEC 651 for the measurement of audible sound in the presence of ultrasound.