SLOVENSKI STANDARD
SIST EN 62585:2012

01-december-2012

Elektroakustika - Metode za določanje popravkov zaradi zagotovitve odzivanja merilnika zvočne ravni v odprtem prostoru

Electroacoustics - methods to determine corrections to obtain the free-field response of a sound level meter

Elektroakustik - Verfahren zur Ermittlung von Korrekturwerten für die Bestimmung des Freifeld-Frequenzgangs eines Schallpegelmessers

Electroacoustique - méthode de détermination de corrections pour obtenir la réponse en champ libre d'un sonomètre

Ta slovenski standard je istoveten z: **EN 62585:2012**

ICS:

17.140.50	Elektroakustika	Electroacoustics

SIST EN 62585:2012 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62585

October 2012

ICS 17.140.50

English version

Electroacoustics - Methods to determine corrections to obtain the free-field response of a sound level meter

(IEC 62585:2012)

Électroacoustique - Méthode de détermination de corrections pour obtenir la réponse en champ libre d'un sonomètre (CEI 62585:2012)

Elektroakustik - Verfahren zur Ermittlung von Korrekturwerten für die Bestimmung des Freifeld-Frequenzgangs eines Schallpegelmessers (IEC 62585:2012)

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CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 62585:2012 E

Foreword

The text of document 29/770/FDIS, future edition 1 of IEC 62585, prepared by IEC/TC 29 "Electroacoustics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62585:2012.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2013-05-29
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2015-08-29

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The text of the International Standard IEC 62585:2012 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61094-8	NOTE	Harmonised as EN 61094-8.
IEC 61260	NOTE	Harmonised as EN 61260.
IEC 61094-2	NOTE	Harmonised as EN 61094-2.
IEC 61094-3	NOTE	Harmonised as EN 61094-3.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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 60942	-	Electroacoustics - Sound calibrators	EN 60942	-
IEC 61094-1	-	Measurement microphones - Part 1: Specifications for laboratory standard microphones	EN 61094-1	-
IEC 61094-5	-	Measurement microphones - Part 5: Methods for pressure calibration of working standard microphones by comparison	EN 61094-5	-
IEC 61094-6	-	Measurement microphones - Part 6: Electrostatic actuators for determination of frequency response	EN 61094-6	-
IEC/TS 61094-7	-	Measurement microphones - Part 7: Values for the difference between free-field and pressure sensitivity levels of laboratory standard microphones	-	-
IEC 61183	-	Electroacoustics - Random-incidence and diffuse-field calibration of sound level meters	EN 61183	-
IEC 61672-1	-	Electroacoustics - Sound level meters - Part 1: Specifications	EN 61672-1	-
IEC 61672-2	-	Electroacoustics - Sound level meters - Part 2: Pattern evaluation tests	EN 61672-2	-
IEC 61672-3	-	Electroacoustics - Sound level meters - Part 3: Periodic tests	EN 61672-3	-
ISO/IEC Guide 98-3	-	Uncertainty of measurement - Part 3: Guide to the expression of uncertainty in measurement (GUM)	-	-
ISO/IEC Guide 99	-	International vocabulary of metrology - Basic and general concepts and associated terms (VIM)	-	-

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Electroacoustics – Methods to determine corrections to obtain the free-field response of a sound level meter

Électroacoustique – Méthodes de détermination de corrections pour obtenir la réponse en champ libre d'un sonomètre

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROACOUSTICS – METHODS TO DETERMINE CORRECTIONS TO OBTAIN THE FREE-FIELD RESPONSE OF A SOUND LEVEL METER

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

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International Standard IEC 62585 has been prepared by IEC technical committee 29: Electroacoustics.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
29/770/FDIS	29/782/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

The performance specification International Standard for sound level meters, IEC 61672-1, requires that at least one model of sound calibrator, conforming to the requirements of IEC 60942 be specified in the instruction manual for checking and maintaining the correct indication on the display of the sound level meter at the calibration check frequency. The sound level meter manufacturer specifies the adjustment value to be applied to obtain the required indication on the display in response to the sound pressure level generated by the sound calibrator, in order to optimize performance over the complete frequency range.

In addition, various corrections need to be available over a range of frequencies in order for a periodic test of a sound level meter to be performed according to IEC 61672-3. For example, corrections are needed for any effects of the sound level meter case or of accessories such as windscreens on the equivalent free-field sound level. Information on these corrections is also required by users of sound level meters and sound calibrators on a regular basis.

Also, a manufacturer producing a sound level meter to the specifications of IEC 61672-1, may recommend, in the instruction manual, the use of a sound calibrator, comparison coupler or electrostatic actuator to determine the acoustical response of a sound level meter at various frequencies. In this case the manufacturer is required to provide corrections to obtain equivalent sound levels that would be displayed under reference environmental conditions in response to plane progressive sinusoidal waves that are incident from the reference direction at each frequency used for periodic testing. These corrections will either be given in the instruction manual, or the instruction manual will state where they can be found.

ELECTROACOUSTICS – METHODS TO DETERMINE CORRECTIONS TO OBTAIN THE FREE-FIELD RESPONSE OF A SOUND LEVEL METER

1 Scope

This International Standard provides information on the corrections required over a range of frequencies in order for a periodic test of a sound level meter to be performed according to IEC 61672-3. These corrections include:

- corrections for the typical effects of reflections from the case of the sound level meter and diffraction of sound around the microphone;
- corrections for the deviation of the typical microphone frequency response from a uniform frequency response, where the actual microphone response cannot be measured;
- corrections for the influence on the frequency response of a typical microphone of a specified windscreen and any other accessory that is part of the configuration for normal use of the particular sound level meter submitted for testing.

This International Standard includes discussion about uncertainties of measurement of the required corrections. In some instances a maximum permitted expanded uncertainty for the manufacturer or testing laboratory is given. This maximum permitted expanded uncertainty excludes any component due to the variability of different samples of artefact (for example, microphone or windscreen). It should be noted that if large uncertainties of measurement are quoted for each of the individual corrections, when they are combined to account for the configuration of sound level meter under test, the large individual uncertainties may result in a failure to conform to the maximum permitted expanded uncertainties of measurement given in Table A.1 of IEC 61672-1:—[1] and hence a failure of the sound level meter to conform to IEC 61672-1

In addition, this International Standard describes methods for determining these corrections, over the frequency range of interest, and explains the adjustment value at the calibration check frequency to be quoted by the manufacturer of the sound level meter (also required by IEC 61672-3).

When the sound level meter manufacturer recommends the use of a sound calibrator, comparison coupler, or an electrostatic actuator for periodic testing of the acoustical response of a sound level meter at various frequencies, this International Standard describes methods of measurement of the corrections required to adjust the indication on the sound level meter to an equivalent free-field level, over the frequency range of interest. These corrections relate to a specific model of sound calibrator, comparison coupler or electrostatic actuator, microphone and sound level meter (also required by IEC 61672-3).

The aim of this International Standard is to ensure that the adjustment value at the calibration check frequency and all corrections are determined using consistent and appropriate methods.

It is intended that this International Standard will be used by manufacturers to determine adjustment values and corrections, by laboratories performing pattern evaluation tests according to IEC 61672-2, and by laboratories performing periodic tests according to IEC 61672-3. Laboratories performing periodic tests according to IEC 61672-3 will also need to consult this International Standard to ensure that the expanded uncertainties of

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1 Second edition to be published. (A revision of 61672-1:2002.)