

## SLOVENSKI STANDARD SIST EN IEC 60645-3:2021

01-januar-2021

Nadomešča:

SIST EN 60645-3:2008

Elektroakustika - Avdiometrična oprema - 3. del: Kratkotrajni preskušalni signali (IEC 60645-3:2020)

Electroacoustics - Audiometric equipment - Part 3: Test signals of short duration (IEC 60645-3:2020)

Akustik - Audiometer - Teil-3; Kurzzeit-Hörprüfsignale (IEC 60645-3:2020)

(standards.iteh.ai)

Electroacoustique - Equipements audiométriques - Partie 3: Signaux d'essai de courte durée (IEC 60645-3:2020)

SIST EN IEC 60645-3:2021

https://standards.iteh.ai/catalog/standards/sist/1cb74e8d-ce29-4c95-bbab-

a7734d5c510f/sist-en-iec-60645-3-2021

Ta slovenski standard je istoveten z: EN IEC 60645-3:2020

ICS:

17.140.50 Elektroakustika Electroacoustics

SIST EN IEC 60645-3:2021 en

**SIST EN IEC 60645-3:2021** 

# iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN IEC 60645-3:2021

https://standards.iteh.ai/catalog/standards/sist/1cb74e8d-ce29-4c95-bbab-a7734d5c510f/sist-en-iec-60645-3-2021

## EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

**EN IEC 60645-3** 

November 2020

ICS 17.140.50

Supersedes EN 60645-3:2007 and all of its amendments and corrigenda (if any)

#### **English Version**

# Electroacoustics - Audiometric equipment - Part 3: Test signals of short duration (IEC 60645-3:2020)

Électroacoustique - Appareils audiométriques - Partie 3: Signaux d'essai de courte durée (IEC 60645-3:2020) Akustik - Audiometer - Teil 3: Kurzzeit-Hörprüfsignale (IEC 60645-3:2020)

This European Standard was approved by CENELEC on 2020-11-03. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

#### SIST EN IEC 60645-3:2021

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

#### EN IEC 60645-3:2020 (E)

## **European foreword**

The text of document 29/1066/FDIS, future edition 3 of IEC 60645-3, prepared by IEC/TC 29 "Electroacoustics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60645-3:2020.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2021-08-03 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2023-11-03 document have to be withdrawn

This document supersedes EN 60645-3:2007 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

# iTeh STEndorsement notice EVIEW (standards.iteh.ai)

The text of the International Standard IEC 60645-3:2020 was approved by CENELEC as a European Standard without any modification. <u>SIST EN IEC 60645-3:2021</u>

https://standards.iteh.ai/catalog/standards/sist/1cb74e8d-ce29-4c95-bbab-

In the official version, for Bibliography5otherfollowing 6notes have to be added for the standards indicated:

IEC 61672-1	NOTE	Harmonized as EN 61672-1
ISO 8253-2	NOTE	Harmonized as EN ISO 8253-2
IEC 60645-1	NOTE	Harmonized as EN 60645-1
IEC 60645-6	NOTE	Harmonized as EN 60645-6
IEC 60645-7	NOTE	Harmonized as EN 60645-7

EN IEC 60645-3:2020 (E)

## Annex ZA

(normative)

# Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: <a href="https://www.cenelec.eu">www.cenelec.eu</a>.

<u>Publication</u>	Year	<u>Title</u>	EN/HD	<u>Year</u>
IEC 60318-1	-	Electroacoustics - Simulators of human head and ear - Part 1: Ear simulator for the measurement of supra-aural and circumaural earphones	EN 60318-1	-
IEC 60318-3	_ iT	Electroacoustics - Simulators of human head and ear - Part 3: Acoustic coupler for the calibration of supra-aural earphones used in audiometry	EN 60318-3	-
IEC 60318-4	https://sta	Electroacoustics - Simulators of human head and ear - Part 4: Occluded ear simulator for the measurement of earphones coupled to the ear by means of ear inserts	EN 60318-4	-
IEC 60318-5	-	Electroacoustics - Simulators of human head and ear - Part 5: 2 cm <sup>3</sup> coupler for the measurement of hearing aids and earphones coupled to the ear by means of ear inserts	EN 60318-5	-
IEC 60318-6	-	Electroacoustics - Simulators of human head and ear - Part 6: Mechanical coupler for the measurement on bone vibrators	EN 60318-6	-
IEC 61260-1	-	Electroacoustics - Octave-band and fractional-octave-band filters - Part 1: Specifications	EN 61260-1	-
ISO 389-6	-	Acoustics - Reference zero for the calibration of audiometric equipment - Part 6: Reference threshold of hearing for test signals of short duration	EN ISO 389-6	-

**SIST EN IEC 60645-3:2021** 

# iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN IEC 60645-3:2021

https://standards.iteh.ai/catalog/standards/sist/1cb74e8d-ce29-4c95-bbab-a7734d5c510f/sist-en-iec-60645-3-2021



IEC 60645-3

Edition 3.0 2020-09

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



Part 3: Test signals of short duration rds.iteh.ai)

Électroacoustique – Appareils <u>audiométriques</u> 27 Partie 3: Signaux d'essai de courte durée/sist/1cb74e8d-ce29-4c95-bbab-a7734d5c510f/sist-en-iec-60645-3-2021

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 17.140.50 ISBN 978-2-8322-8901-3

Warning! Make sure that you obtained this publication from an authorized distributor.

Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

IEC 60645-3:2020 © IEC 2020

## **CONTENTS**

-2-

FOF	REWO	RD	3
INT	RODU	ICTION	5
1	Scop	e	6
2	Norm	native references	6
3	Term	s and definitions	7
4	Refe	rence signals	10
4	1.1	General	10
4	1.2	Reference click	11
4	1.3	Reference tone-burst	11
4	1.4	Reference broadband chirp	12
4	1.5	Reference octave-band chirps	12
5	Calib	ration and measurement of short-duration signals	13
Bibl	liograp	phy	14
Figu	ure 1 -	- Basic specification of an electrical reference click	7
Figu	ure 2 -	- Illustration of the method of measurement of peak-to-peak equivalent signal	
leve	els	Teh STANDARD PREVIEW  - Temporal characteristics of an electrical reference tone-burst	8
Figu	ure 3 -	- Temporal characteristics of an electrical reference tone-burst	8
Figu	ure 4 -	- Time domain specification of the electrical reference click	11
Figu	ure 5 -	- Temporal characteristics of the electrical reference broadband chirp	12

https://standards.iteh.ai/catalog/standards/sist/1cb74e8d-ce29-4c95-bbaba7734d5c510f/sist-en-iec-60645-3-2021

### INTERNATIONAL ELECTROTECHNICAL COMMISSION

#### **ELECTROACOUSTICS – AUDIOMETRIC EQUIPMENT –**

### Part 3: Test signals of short duration

### **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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, EC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication dards/sist/1cb74e8d-ce29-4c95-bbab-
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60645-3 has been prepared by IEC technical committee 29: Electroacoustics.

This third edition cancels and replaces the second edition published in 2007. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) new figures of reference signals;
- b) changes in definitions.

IEC 60645-3:2020 © IEC 2020

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

FDIS	Report on voting
29/1066/FDIS	29/1070/RVD

**-4** -

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

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

A list of all parts of IEC 60645 series, under the general title *Electroacoustics – Audiometric equipment*, can be found on the IEC website.

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

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

## iTeh STANDARD PREVIEW

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

ards.iteh.ai/catalog/standards/sist/1cb74e8d-ce29-4c95-bbak

a7734d5c510f/sist-en-iec-60645-3-2021

IEC 60645-3:2020 © IEC 2020

- 5 -

### INTRODUCTION

Developments in the field of hearing measurements for diagnostic, hearing conservation and rehabilitation purposes have resulted in the availability of a wide range of audiometric equipment. In addition, it is possible to consider audiometric equipment in terms of a set of functional units that can be specified independently. By specifying these functional units, it is then possible to specify the performance of other audiometric equipment that uses these units. The IEC 60645 series consists of a number of parts. IEC 60645-3 covers the requirements for reference and other test signals of short duration.

Examples of test methods, where such signals are commonly used, are the recording of auditory evoked potentials and evoked otoacoustic emissions. Reference signals are described in order to provide a basis for calibration and as a recommendation for use when there is no specific reason to have an alternative signal. Measurement methods for short duration acoustic and vibratory test signals are described.

# iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN IEC 60645-3:2021 https://standards.iteh.ai/catalog/standards/sist/1cb74e8d-ce29-4c95-bbab-a7734d5c510f/sist-en-iec-60645-3-2021