



SLOVENSKI STANDARD
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01-maj-2023

**Prenosna multimedijaska oprema - Določanje življenjske dobe baterije - 2. del:
Naglavne in ušesne slušalke s funkcijo aktivnega dušenja hrupa**

Portable multimedia equipment - Determination of battery duration - Part 2: Headphones and earphones with active noise cancelling functions

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OF INTEREST TO THE FOLLOWING COMMITTEES: TA 20	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
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TITLE:

Portable multimedia equipment – Determination of battery duration – Part 2: Headphones and earphones with active noise cancelling functions

PROPOSED STABILITY DATE: 2027

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**PORTABLE MULTIMEDIA EQUIPMENT –
DETERMINATION OF BATTERY DURATION –**

**Part 2: Headphones and earphones with
active noise cancelling functions**

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IEC 63296-2 has been prepared by technical area 19: Environmental and energy aspects for multimedia systems and equipment, of IEC technical committee 100: Audio, video and multimedia systems and equipment. It is an International Standard.

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

FDIS	Report on voting
XX/XX/FDIS	XX/XX/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.

The language used for the development of this International Standard is English.

85 A list of all parts in the IEC 63296 series, published under the general title Portable multimedia
86 equipment – Determination of battery duration, can be found on the IEC website.

87 This document has been drafted in accordance with the ISO/IEC Directives, Part 2, and
88 developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC
89 Supplement, available at www.iec.ch/members_experts/refdocs. The main document types
90 developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

91 The committee has decided that the contents of this document will remain unchanged until the
92 stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to
93 the specific document. At this date, the document will be

- 94 • reconfirmed,
- 95 • withdrawn,
- 96 • replaced by a revised edition, or
- 97 • amended.

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100

INTRODUCTION

101 This document specifies a measurement method for battery duration on active acoustic noise
102 cancelling headphones and earphones. Active acoustic noise cancelling headphones and
103 earphones are commonly used to reduce the environmental acoustic noise to which the ear is
104 exposed. However, there is no international standard for a battery duration measurement
105 method of active acoustic noise cancelling headphones and earphones. Each company
106 evaluated the performance using its own method, and the evaluation values were not uniform.

107 This standard for the measurement of the battery duration and the notation of measured value
108 allows the comparison of performance data obtained in different locations.

109 IEC 63296 series currently consists of the following planned or published parts:

- 110 – Part 1: Powered loudspeaker equipment
- 111 – Part 2: Headphones and earphones with active noise-cancelling functions

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PORTABLE MULTIMEDIA EQUIPMENT – DETERMINATION OF BATTERY DURATION –

Part 2: Headphones and earphones with active noise cancelling functions

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122 **1 Scope**

123 This document is applicable to active acoustic noise cancelling headphones and earphones
124 which have the function of reducing the noise heard by the user by the output sound from the
125 transducer generated by the environment noise detection microphone and the noise reduction
126 signal processing circuit.

127 This document specifies the terms and definitions relating battery duration of this type of
128 headphones or earphones and the measurement and evaluation methods.

129 This document covers headphones and earphones to be worn over-the-ear or in-ear, all of which
130 are referred to as headphones in this document.

131 The noise detection microphones are mounted in the body, on the surface, or on an accessory
132 of the headphones or earphones. Signal processing circuits are analogue and digital electronic
133 circuits.

134 This document does not deal with equipment intended for hearing protection. It is also not
135 applicable to music players, recorders, etc. that have a noise cancelling function.

136 The battery duration measurement methods may be applied to headphones and earphones
137 having no active noise cancelling function.

138 **2 Normative references**

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

143 IEC 60268-1:1985, *Sound system equipment. Part 1: General*

144 IEC 60068-1:2013, *Environmental testing - Part 1: General and guidance*

145 IEC 60268-7:2010, *Sound system equipment - Part 7: Headphones and earphones*

146 IEC 60318-4:2010, *Electroacoustics – Simulators of human head and ear – Part 4:*
147 *Occluded-ear simulator for the measurement of earphones coupled to the ear by means of ear*
148 *inserts*

149 IEC 60318-7:2017, *Electroacoustics – Simulators of human head and ear – Part 7: Head*
150 *and torso simulator for the measurement of air-conduction hearing aids*

151 IEC 60268-24, *Sound system equipment - Part 24: Headphones and earphones – Active*
152 *acoustic noise cancelling characteristics*

153 **3 Terms and definitions**

154 For the purposes of this document, the following terms and definitions including those of IEC
155 60268-7, IEC 60318-4, IEC 60318-7 and IEC 60268-24 apply.

156 ISO and IEC maintain terminological databases for use in standardization at the following
157 addresses:

- 158 • IEC Electropedia: available at <http://www.electropedia.org/>
- 159 • ISO Online browsing platform: available at <http://www.iso.org/obp>

160 **3.1**161 **earphone**

162 electroacoustic transducer by which acoustic oscillations are obtained from electric signals and
163 intended to be closely coupled acoustically to the ear

164 [Source: IEC 60268-7:2010]

165 **3.2**166 **headphone**

167 assembly of one or two earphones on a headband or chinband

168 Note 1 to entry: The earphone can be worn either over-the-ear (circum-aural, supra-aural or supra-concha) or in-ear
169 (intra-concha, insert and insert with sound tube).

170 Note 2 to entry: The use of a headband or chinband can be optional with intra-concha earphones

171 Note 3 to entry: The audio signals can be provided either wireless or via cable.

172 [Source: IEC 60268-7:2010 modified: Notes 1 & 3 added, note 2 reflects optional part of original
173 definition]

174 **3.3**175 **active noise cancelation**176 **ANC**

177 characteristics of reducing the noise level in the user's ear canal by the output sound from the
178 driver generated by the noise detection microphone and the signal processing circuit

179 **3.4**180 **head and torso simulator**181 **HATS**

182 simulator of a median adult human head and part of the torso extending in total from the top of
183 the head to the waist and designed to simulate the sound pick-up characteristics and acoustic
184 diffraction

185 **3.5**186 **acoustic test fixture**187 **ATF**

188 inanimate device that approximates certain physical characteristics and dimensions of a
189 representative human head, pinnae, and earcanal and is used for measuring the insertion loss
190 of environmental noise by a headphone

191 [Source: ANSI/ASA S12.42, modified by replacing 'of a hearing protection device' by 'of
192 environmental noise by a headphone']

193 **3.6**194 **operating time**

195 time interval for which the headphone is in an operating state until the sound is interrupted, or
196 abnormal operation is performed

197 Note 1 to entry: The state where the sound is interrupted is a state where the sound output from the speaker is
198 stopped and does not include a state where the sound is distorted, or the sound pressure is low.

199 Note 2 to entry: The abnormal operation includes an ANC stop as an example.

200 **4 Measuring method of battery duration**

201 **4.1 General**

202 The battery duration on the noise cancelling headphones is specified by measuring the
203 operation time.

204 **4.2 Test signal**

205 The programme simulation noise specified in IEC 60268-1 is used as a signal equivalent to a
206 music playback signal. The crest factor of the programme simulation noise shall be ranged
207 between 1,8 and 2,2.

208 **4.3 Environmental noise signal**

209 Either of the following three simulated environmental noises specified in 4.2.2 of IEC 60268-24

210 a) simulated aircraft noise (noise simulating noise in the aircraft cabin)

211 b) simulated cabin noise (noise simulating noise in the train cabin)

212 c) simulated cafeteria noise (noise simulating noise in the cafeteria)

213 or the pink noise specified in IEC 60050 801-21-11 shall be used. It is recommended to select
214 the environmental noise according to the assumed use case.

215 **4.4 Standard conditions for Measurement**

216 **4.4.1 General conditions for measurement**

217 a) Temperature of 15 to 35 °C, preferably at 20 °C

218 b) Relative humidity of 25 to 75 %

219 c) Atmospheric pressure of 86 to 106 kPa

220 If the environmental conditions are outside these ranges, this shall be stated, and the actual
221 conditions shall be specified (see IEC 60068-1 4.3).

222 **4.4.2 Test site**

223 Test site is specified in 4.3.1 of IEC 60268-24. An example of battery duration measurement
224 system is shown in Figure 1.

225 **4.5 Test equipment**

226 Play back equipment for environmental noise signals, HATS or ATF and analysis equipment
227 are specified in 4.4 of IEC 60268-24.

228 **4.6 Battery to be measured**

229 Primary batteries shall be unused with the standard capacity of the type specified by the
230 manufacturer. Secondary batteries (rechargeable batteries) shall be those attached to the
231 equipment or activated with a standard capacity of the type specified by the manufacturer (e.g.
232 in the instruction manual). It shall be fully charged in accordance with the instruction manual of
233 the equipment.