



# SLOVENSKI STANDARD

## oSIST prEN 352-7:2017

01-september-2017

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**Varovala sluha - Varnostne zahteve in preskušanje - 7. del: Čepi, prilagodljivi ravni hrupa**

Hearing protectors - Safety requirements and testing - Part 7: Level-dependent ear-plugs

Gehörschützer - Sicherheitstechnische Anforderungen und Prüfungen - Teil 7:  
Pegelabhängig dämmende Gehörschutzstöpsel

Protecteurs individuels contre le bruit - Exigences de sécurité et essais - Partie 7 :  
Bouchons d'oreilles à atténuation dépendante du niveau

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**ICS:**

13.340.20 Varovalna oprema za glavo Head protective equipment

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EUROPEAN STANDARD  
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**DRAFT**  
**prEN 352-7**

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ICS 13.340.20

Will supersede EN 352-7:2002

English Version

## Hearing protectors - Safety requirements and testing - Part 7: Level-dependent ear-plugs

Protecteurs individuels contre le bruit - Exigences de  
sécurité et essais - Partie 7 : Bouchons d'oreilles à  
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und Prüfungen - Teil 7: Pegelabhängig dämmende  
Gehörschutzstöpsel

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 159.

If this draft becomes a European Standard, CEN 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## European foreword

This document (prEN 352-7:2017) has been prepared by Technical Committee CEN/TC 159 "Hearing protectors", the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 352-7:2002.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Regulation(s).

For relationship with EU Regulation(s), see informative Annex ZA, which is an integral part of this document.

In comparison with the previous edition, the following technical modifications have been made:

| Clause/Paragraph/Table/Figure  | Change                                       |
|--|--|
| 4.1.2 and 4.1.3  | New requirements on criterion levels added   |
| 5 Testing, Annex B   | removed, reference to prEN 13819-3 x.x added |
| NOTE The technical changes referred to include the significant technical changes from the EN revised but is not an exhaustive list of all modifications from the previous edition. |  |

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## Introduction

Level-dependent earplugs are designed to provide restoration of external sounds, while providing attenuation of sounds at high levels. They may be selected for use in intermittent or impulsive noise environments and where external warning sounds are required to be heard. This standard is concerned with those earplugs having an electronic sound restoration circuit.

The requirements of the standard are concerned primarily with the level-dependent performance of the earplugs.

EN 352-7 is part of a family of standards describing product requirements:

- EN 352-1, *Hearing protectors — General requirements — Part 1: Earmuffs*
- EN 352-2, *Hearing protectors — General requirements — Part 2: Earplugs*
- EN 352-3, *Hearing protectors — General requirements — Part 3: Earmuffs attached to head protection and/or face protection devices*
- EN 352-4, *Hearing protectors — Safety requirements and testing — Part 4: Level-dependent earmuffs*
- EN 352-5, *Hearing protectors — Safety requirements and testing — Part 5: Active noise reduction earmuffs*
- EN 352-6, *Hearing protectors — Safety requirements and testing — Part 6: Earmuffs with safety-related audio input*
- EN 352-7, *Hearing protectors — Safety requirements and testing — Part 7: Level-dependent earplugs*
- EN 352-8, *Hearing protectors — Safety requirements and testing — Part 8: Entertainment audio earmuffs*
- prEN 352-9, *Hearing protectors — Safety requirements and testing — Part 9: Earplugs with safety-related audio input*
- prEN 352-10, *Hearing protectors — Safety requirements and testing — Part 10: Earplugs with entertainment audio input*

Test methods for these requirements are described in the following standards:

- EN 13819-1, *Hearing protectors — Testing — Part 1: Physical test methods*
- EN 13819-2, *Hearing protectors — Testing — Part 2: Acoustic test methods*
- prEN 13819-3, *Hearing protectors — Testing — Part 3: Supplementary acoustic test methods*

An associated standard EN 458 covers selection, use, care and maintenance of hearing protection.

The criterion levels within this standard are determined to limit the sound pressure level effective to the ear to 85 dB(A).

## 1 Scope

This European Standard is applicable to level-dependent earplugs. It specifies requirements on construction, design, performance, marking and user information related to the inclusion of the level-dependent functionality.

## 2 Normative references

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.

EN 352-2, *Hearing protectors — General requirements — Part 2: Ear-plugs*

prEN 13819-3:2016, *Hearing protectors — Testing — Part 3: Supplementary acoustic test methods*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 352-2 and the following apply.

### 3.1

#### **level-dependent earplugs**

earplugs fitted with an electronic sound restoration circuit

### 3.2

#### **sound restoration circuit**

electroacoustic device intended to reproduce lower level external sounds in the ear canal, while usually restricting reproduction of higher level sounds by means of a level-dependent gain function

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### 3.3

#### **criterion level (H)**

A-weighted sound pressure level of the H noise for which the A-weighted equivalent diffuse field related sound pressure level when level-dependent earplugs are worn and the sound restoration circuit is operating at maximum volume first exceeds 85 dB(A), as determined using the calculation procedure described in prEN 13819-3

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### 3.4

#### **criterion level (M)**

A-weighted sound pressure level of the M noise for which the A-weighted equivalent diffuse field related sound pressure level when level-dependent earplugs are worn and the sound restoration circuit is operating at maximum volume first exceeds 85 dB(A), as determined using the calculation procedure described in prEN 13819-3

### 3.5

#### **criterion level (L)**

A-weighted sound pressure level of the L noise for which the A-weighted equivalent diffuse field related sound pressure level when level-dependent earplugs are worn and the sound restoration circuit is operating at maximum volume first exceeds 85 dB(A), as determined using the calculation procedure described in prEN 13819-3

### 3.6

#### **impulse-type noise**

noise characterized by short duration high-level peaks and low-level background noise

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### 4 Requirements

#### 4.1 General

Level-dependent earplugs shall meet the requirements of EN 352-2 and the requirements listed in 4.2.

#### 4.2 Performance

##### 4.2.1 Criterion levels

The criterion levels for the three noises H, M and L determined in accordance with test procedures as specified in prEN 13819-3:2016, 7.1.2 shall be reported in the user information.

##### 4.2.2 Criterion levels for products intended for use in impulse-type noise situations only

Products that are intended for use in impulse-type noise situations only shall meet the requirements:

- minimum criterion level (H) = 85 dB(A);
- minimum criterion level (M) = 85 dB(A);
- minimum criterion level (L) = 85 dB(A).

##### 4.2.3 Criterion levels for products not intended for use in impulse-type noise situations only

Products that are not intended for use in impulse-type noise situations only shall meet the following requirements:

- minimum criterion level (H) = 97 dB(A);
- minimum criterion level (M) = 96 dB(A); [SIST EN 352-7:2021](https://standards.iteh.ai/catalog/standards/sist/97a936e3-ab98-448d-8eb1-46b99f3be6a/sist-en-352-7-2021)
- minimum criterion level (L) = 94 dB(A); <https://standards.iteh.ai/catalog/standards/sist/97a936e3-ab98-448d-8eb1-46b99f3be6a/sist-en-352-7-2021>

If there is no difference between the criterion level (L) when the level-dependent function is on and off, the requirement minimum criterion level (L) does not apply.

### 5 Marking

There are no requirements for marking in addition to what is given in EN 352-2.

### 6 Information supplied by the manufacturer

#### 6.1 User information

The following information for the user (in addition to that required by EN 352-2) shall be supplied with the earplugs:

- a) the number of this standard, EN 352-7;
- b) an indication that the hearing protector provides a level-dependent functionality;
- c) the values of the criterion levels as determined by the procedures described in prEN 13819-3;
- d) a method for checking, charging and changing batteries;
- e) statements that include the following information:



- 1) The earplugs are provided with level-dependent attenuation. The user should check correct operation before use. If distortion or failure is detected, the user should refer to the manufacturer's advice for maintenance and replacement of the battery.
  - 2) A warning that the performance may deteriorate with battery usage and the typical period of continuous use that can be expected from the earplugs battery.
- f) in case that the product does not fulfil the criterion requirements in 4.2.3 but fulfils the requirements of 4.2.2 a warning that the product is not suited for high continuous noise levels.

## 6.2 Additional information

The following information shall be available from the manufacturer on request:

- a) results of tests performed in accordance with this standard;
- b) the name and country of the test laboratory which performed the tests specified and the date of the tests.

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