BSI Standards Publication

Hearing protectors — Guidance on selection of individual fit testing methods

National foreword

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The UK participation in its preparation was entrusted to Technical Committee PH/7, Hearing protectors.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Hearing protectors - Guidance on selection of individual fit testing methods

Protecteurs individuels contre le bruit - Recommandations relatives au choix des méthodes individuelles de contrôle de l'ajustement

Gehörschützer - Leitfaden zur Auswahl von Prüfverfahren für den individuellen Sitz

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European foreword

This document (EN 17479:2021) has been prepared by Technical Committee CEN/TC 159 “Hearing protectors”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2022, and conflicting national standards shall be withdrawn at the latest by May 2022.

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Introduction

The need for the use of hearing protectors is obvious nowadays. Appropriate hearing protection is chosen based on different selection criteria such as required sound attenuation, comfort, workplace environment and a possible need for communication, audibility of important sounds etc. Different selection criteria for hearing protector selection are given in EN 458:2016 “Hearing protectors — Recommendations for selection, use, care and maintenance — Guidance document” [4].

As appropriate sound attenuation should be key in this selection process, this should be compared to the user’s need in two steps. Firstly, appropriate hearing protection should be selected based on the attenuation data from the REAT test according to EN ISO 4869-1:2018 [7] and EN ISO 4869-2:2018 [8], as provided by the manufacturer. Secondly, by using individual fit testing methods the effective attenuation can be assessed (e.g. acoustic or pressure sealing, personal attenuation rating, etc.).

In addition, the effective attenuation can be estimated and compared to the required sound attenuation. Whilst fit testing can play a valuable role in the selection and usage, it is no substitute for conformity testing.

Fit testing can also be used to increase the awareness of the user on the importance of a proper fit. It can help the user achieve a fit that maximizes the likelihood of that user receiving the expected level of protection. It could also form part of the training for safety engineers, healthcare specialists and supervisors, to provide a good understanding of the importance of a proper fitting and it can also be a helpful training aid for the user.

This document gives practical guidance for the appropriate selection of fit testing methods, their uses and limitations.

This document does not specify the technical requirements for manufacturing fit testing equipment.

1 Scope

This document gives guidelines for the appropriate selection of fit testing methods and measurement, and provides practical guidelines on fit testing methods, their uses and limitations.

This document does not specify the technical requirements for manufacturing fit testing equipment.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
fit testing
<hearing protectors> procedure for checking that a specific hearing protector is suitable for use by a specific individual by assessing the physical fit, seal, sound attenuation or other properties of the hearing protector

3.2
repeatability
closeness of the agreement between the results of successive measurements of the same test item carried out under the same conditions of measurement

Note 1 to entry: These conditions are called repeatability conditions.

Note 2 to entry: Repeatability conditions include:

— the same measurement procedure;

— the same observer;

— the same measuring instrument, used under the same conditions;

— the same location;

— repetition over a short period of time.

Note 3 to entry: Repeatability may be expressed quantitatively in terms of the dispersion characteristics of the results.

[SOURCE: ISO/IEC Guide 98-3:2008, B.2.15, modified: “(of results of measurements)” deleted in term designation and “measurand” replaced by “test item”.]

3.3
reproducibility
closeness of the agreement between the results of measurements of the same test item carried out under changed conditions of measurement