

---

---

**Ergonomics — Accessible design —  
Auditory signals for consumer products**

*Ergonomie — Conception accessible — Signaux auditifs pour produits  
de consommation courante*



**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

This document is a preview generated by EVS



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2010

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 24500 was prepared by Technical Committee ISO/TC 159, *Ergonomics*, Subcommittee SC 5, *Ergonomics of the physical environment*.

## Introduction

People are surrounded by various consumer products: home electrical appliances, information and communication products, office-automation equipment, gas-heating equipment, toys, sanitary equipment, health-care products, cameras, etc. Auditory signals of such products must be designed so that the user can easily hear the signals in various circumstances where the product is normally used, and understand the objective and meaning of signalling.

This International Standard has been developed for improving the usability and accessibility of auditory signals used in such consumer products, thereby improving the products themselves when they are used by all people, including those with visual impairments and older people with age-related hearing impairments. Older people include those aged 65 and above for whom age-related changes of hearing become obvious.

The auditory-signal patterns specified in this International Standard were selected based on results of experiments in which people of different age ranges and with different levels of visual impairment participated. Regarding the signals, it was confirmed that the purpose of signalling was easy for listeners to understand and that the signals were not easily confused with signals in other signal categories.

This International Standard adopts the principles of accessible design presented in ISO/IEC Guide 71 and amplified in ISO/TR 22411.

# Ergonomics — Accessible design — Auditory signals for consumer products

## 1 Scope

This International Standard specifies the auditory signals used as a means of feedback for operations or conditions of consumer products when used by a person with or without visual or auditory impairment. It is intended to be applied as appropriate to such products depending on the product type and its conditions of use.

It is applicable to auditory signals of a fixed frequency used in general applications (also called “beep sounds”), but not to variable frequency or periodic sounds.

It does not specify fire or gas leak alarm sounds or crime prevention alarm sounds (determined by other laws and regulations), electronic chimes, voice guides or other sounds particular to communication instruments such as telephones; nor is it applicable to auditory danger signals for public or work areas (covered in ISO 7731, ISO 8201, and ISO 11429).

It is not applicable to machines and equipment used for professional work; nor does it specify the sound pressure levels of auditory signals from the consumer products.

NOTE For the determination of these levels, taking into consideration accessible design, see ISO 24501.

## 2 Normative references

The following referenced documents are indispensable for the application 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.

IEC 60050-801, *International electrotechnical vocabulary — Chapter 801: Acoustic and electroacoustics*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-801 and the following apply.

### 3.1

#### **auditory signal**

sound emitted from a product for the purpose of conveying information to help the user to use the product correctly

### 3.2

#### **operation**

action which the user performs, using a product for achieving a purpose