International Standard 6189

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Acoustics — Pure tone air conduction threshold audiometry for hearing conservation purposes

Acoustique — Audiometrie liminaire tonale en conduction aérienne pour les besoins de la preservation de l'ouïe

First edition — 1983-12-01

UDC 534.6/.7 : 612.85 **Ref. No. ISO 6189-1983 (E)**

Descriptors : acoustics, audiometry, definitions, audiometers, calibrating, testing conditions, acoustic measurement.

Price based on 9 pages

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 6189 was developed by Technical Committee ISO/TC 43, *Acoustics*, and was circulated to the member bodies in June 1982.

It has been approved by the member bodies of the following countries :

Australia	Greece	Portugal
Austria	Hungary	Romania
Belgium	Israel	South Africa, Rep. of
Brazil	Italy	Spain
Canada	Jamaica	Sweden
China	Japan	Switzerland
Czechoslovakia	Netherlands	United Kingdom
Denmark	New Zealand	USA
Finland	Norway	USSR
Germany, F. R.	Pakistan	

The member body of the following country expressed disapproval of the document on technical grounds :

France

Printed in Switzerland

Acoustics — Pure tone air conduction threshold audiometry for hearing conservation purposes

0 Introduction

This International Standard lays down requirements and procedures for conducting pure tone air conduction threshold audiometry when it is deemed by the responsible authority appropriate to monitor the hearing of subjects exposed to noise at work. Monitoring audiometry provides a safeguard against the effects of noise causing hearing loss and monitors the effectiveness of procedures such as organizational measures and the wearing of hearing protectors. Since hearing conservation concerns normal hearing as well as impaired hearing, requirements are presented for measuring hearing sensitivity down to levels below the standard reference zero for the calibration of pure tone audiometers. This International Standard does not present procedures for accomplishing either bone conduction pure tone audiometry or speech audiometry.

In obtaining a reliable measure of hearing sensitivity many factors are involved. It is essential that audiometers, when in service, be checked and the calibration maintained. This International Standard presents an outline of a calibration scheme. To avoid masking of the test tone of the audiometer by ambient noise in the audiometric test room, the levels of the ambient noise have to lie below certain values. This International Standard gives maximum permissible ambient sound pressure levels not to be exceeded when hearing threshold levels down to 0 dB (see ISO 389) have to be measured. It indicates the maximum ambient sound pressure levels which are permissible when other minimum hearing threshold levels have to be measured.

Recent exposure to noise may temporarily elevate hearing threshold levels. Procedures to minimize temporary threshold shift during audiometric testing are given.

Methods of conducting audiometric tests with manual and automatic recording fixed frequency audiometers are presented in this International Standard. For manual audiometry, a bracketing and an ascending method are specified. Also computer controlled or other automated equipment may be used for the audiometric procedure. It is essential that the preparation and the instruction of the test subject as well as the conduct of an audiometric test be carried out by a qualified person.

In this International Standard, rules are given to obtain the hearing threshold levels from an audiometric recording and to construct an audiogram. Provisional data is given for the difference existing between hearing threshold levels recorded by manual audiometers and those recorded by automatic recording audiometers.

This International Standard presents measures of the reliability of audiometric measurements and contains a bibliography.

1 Scope

This International Standard specifies procedures and requirements for air conduction pure tone threshold audiometry without masking that are applicable to individuals whose hearing sensitivity might be adversely affected by occupational noise exposure and presents techniques for automatic recording and manual audiometry.

2 Field of application

The procedures and requirements presented in this International Standard are restricted to air conduction pure tone threshold audiometry by earphones; other audiometric techniques, such as bone conduction pure tone threshold audiometry, masking and speech audiometry, are not specified. Techniques for computer controlled audiometry are not specified, but shall elicit results equivalent to manual audiometry. The specifications in this International Standard are not intended for clinical purposes nor are they applicable without modification in other circumstances, such as at schools or at health service institutes.

3 References

ISO 389, *Acoustics — Standard reference zero for the calibration of pure-tone audiometers.*[1)]

ISO 4869, *Acoustics — Measurement of sound attenuation of hearing protectors — Subjective method.*

IEC Publication 303, *IEC provisional reference couple for the calibration of earphones used in audiometry.*

IEC Publication 318, *An IEC artificial ear, of the wideband type, for the calibration of earphones used in audiometry.*

IEC Publication 645, *Audiometers.*

1) See also ISO 389/Add. 1.