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Acoustics — Objective method for assessing the audibility of tones in noise — Engineering method

bsi.

National foreword

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 43, *Acoustics*, Subcommittee SC 1, *Noise*.

This first edition of ISO/TS 20065 cancels and replaces ISO/PAS 20065:2016, which has been technically revised.

The main changes are as follows:

— guidance on residual sound (5.3.1);

— a file containing a number of other example audio files and a guidance document can be downloaded from https://standards.iso.org/iso/ts/20065/ed-1/en (from “Prominent tones in wind turbine noise Round robin test IEC 61400-11, ISO/PAS 20065”);

— editorial changes for clarity, for easier implementation in software, and to meet the latest ISO standards, including definitions, measures, formulae, aligned and streamlined terminology, and additional background information.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Acoustics — Objective method for assessing the audibility of tones in noise — Engineering method

1 Scope

This document describes a method for the objective determination of the audibility of tones in environmental noise.

This document is intended to augment the usual method for evaluation on the basis of aural impression, in particular, in cases in which there is no agreement on the degree of the audibility of tones. The method described can be used if the frequency of the tone being evaluated is equal to, or greater than, 50 Hz. In other cases, if the tone frequency is below 50 Hz, or if other types of noise (such as screeching) are captured, then this method cannot replace subjective evaluation.

NOTE The procedure has not been validated below 50 Hz.

The method presented herein can be used in continuous measurement stations that work automatically.

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.

ISO 1996-1, *Acoustics — Description, measurement and assessment of environmental noise — Part 1: Basic quantities and assessment procedures*

IEC 61672-1, *Electroacoustics — Sound level meters — Part 1: Specifications*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1996-1 and the following apply.

ISO and IEC maintain terminology 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/

NOTE Unless otherwise stated, the reference level for decibel (dB) values in these definitions is 20 µPa.

3.1
tone
sound characterized by a single-frequency component or narrow-band components

3.2
tone frequency
f_T
frequency of the *spectral line* (3.23) (or mid-band frequency of the narrow-band filter), to the level of which the *tone* (3.1) contributes most strongly

Note 1 to entry: Tone frequency is expressed in hertz (Hz).

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