
Escalators and moving walks —
Part 9:
Measurement of ride quality

Escaliers mécaniques et trottoirs roulants —

Partie 9: Mesure de la qualité de leur déplacement



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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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 178, *Lifts, escalators and moving walks*.

This first edition of ISO 8103-9 cancels and replaces ISO 18738-2:2012, of which it constitutes a minor revision.

A list of all parts in the ISO 8103 series can be found on the ISO website.

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.

Introduction

The objective of this document is to encourage industry-wide uniformity in the definition, measurement, processing and expression of vibration and noise signals that comprise ride quality of escalators and moving walks.

The aim of such uniformity is to benefit industry clients by reducing variability in the results of ride quality measurements caused by differences in the methods of acquiring and quantifying the signals.

This document is intended to be referred to by those parties interested in:

- a) developing manufacturing specifications and calibration methods for instrumentation;
- b) defining the scope of the specifications for ride quality in contracts; and
- c) measuring ride quality of escalators and moving walks in accordance with an International Standard.

This document is intended to produce ride quality measurement methods and results which:

- a) are simple to understand without specialized knowledge of noise and vibration analysis;
- b) correlate well with human response to ensure plausibility; and
- c) are accountable via calibration procedures, which are traceable to national standards.

Experience in the escalator and moving walk industry has shown that passenger perception and sound pressure levels measured while travelling on an escalator or moving walk can be influenced by the presence of extraneous noise sources and by the acoustic characteristics of the environment in which the unit is installed. Additionally, the proximity of the escalator or moving walk to strong reflecting surfaces such as walls, ceilings or diagonally opposite units can also influence the sound pressure level measured. These influences can cause a sound pressure level measurement to significantly overestimate the sound level emitted exclusively by the unit.

In order to address this issue, this document defines the methodology for measuring sound pressure level that corresponds to passenger perception and additionally defines the methods that should be used if further understanding of the result is required in order to quantify the noise emitted by the unit as compared to the background or environmental contributions.

Escalators and moving walks —

Part 9: Measurement of ride quality

1 Scope

This document specifies requirements and methodology for the measurement and reporting of escalator and moving walk ride quality. This document does not specify acceptable or unacceptable ride quality values.

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 2041, *Mechanical vibration, shock and condition monitoring — Vocabulary*

ISO 8041, *Human response to vibration — Measuring instrumentation*

ISO 11201, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections*

ISO 11205, *Acoustics — Noise emitted by machinery and equipment — Engineering method for the determination of emission sound pressure levels in situ at the work station and at other specified positions using sound intensity*

IEC 61043:1993, *Electroacoustics — Instruments for the measurement of sound intensity — Measurements with pairs of pressure sensing microphones*

IEC 61672-1:2013, *Electroacoustics — Sound level meters — Part 1: Specifications*

IEC 61672-2:2017, *Electroacoustics — sound level meters — Part 2: Pattern evaluation tests*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 2041, ISO 11201, ISO 11205 and the following 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 <http://www.electropedia.org/>

3.1

load carrying unit

part of an escalator or moving walk designed to carry persons for the purpose of transportation

EXAMPLE Step, pallet or belt.