

This is a preview of "ISO 18738-1:2012". [Click here to purchase the full version from the ANSI store.](#)

First edition
2012-10-15

Measurement of ride quality — Part 1: Lifts (elevators)

*Mesure de la qualité de déplacement —
Partie 1: Ascenseurs*



Reference number
ISO 18738-1:2012(E)

© ISO 2012

This is a preview of "ISO 18738-1:2012". [Click here to purchase the full version from the ANSI store.](#)



COPYRIGHT PROTECTED DOCUMENT

© ISO 2012

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
Web www.iso.org

Published in Switzerland

This is a preview of "ISO 18738-1:2012". Click here to purchase the full version from the ANSI store.

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Measuring instrumentation	3
4.1 General.....	3
4.2 Characteristics.....	3
4.3 Processing of vibration data.....	3
4.4 Environmental effects.....	4
4.5 Sound measurement requirements.....	4
4.6 Calibration requirements.....	4
5 Evaluation of ride quality	4
5.1 Boundaries of calculation.....	4
5.2 Acceleration and deceleration.....	5
5.3 Jerk.....	7
5.4 Vibration.....	8
5.5 Velocity.....	10
5.6 Sound.....	11
6 Procedure and expression of results	11
6.1 Preparation for measurement and expression of results.....	11
6.2 Location of transducers.....	12
6.3 Personnel.....	14
6.4 Measurement process.....	14
6.5 Reporting of results.....	14
Annex A (normative) Calculation of peak-to-peak vibration levels	16
Annex B (normative) Calculation of constant and non-constant acceleration regions	17
Bibliography	18

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 18738-1 was prepared by Technical Committee ISO/TC 178, *Lifts, escalators, passenger conveyors*.

ISO 18738 consists of the following parts, under the general title *Measurement of ride quality*:

- *Part 1: Lifts (elevators)*
- *Part 2: Escalators and moving walks*

This is a preview of "ISO 18738-1:2012". [Click here to purchase the full version from the ANSI store.](#)

Introduction

The objective of this part of ISO 18738 is to encourage industry-wide uniformity in the definition, measurement, processing and expression of vibration and noise signals that comprise lift ride quality.

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

This part of ISO 18738 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 lift ride quality in contracts, and
- c) measuring lift ride quality in accordance with an International Standard.

It is intended to produce lift ride quality measurements 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.

This part of ISO 18738 refers to ISO 8041 and IEC 61672 and has drawn significantly on the considerable body of research implicit in these standards. However, several special challenges drawing on additional research and development were also recognized.

Experience in the lift industry indicates that evaluation of vibration in terms of peak-to-peak levels is of particular relevance to passenger comfort. It was considered necessary for this part of ISO 18738 to provide a dual form of expression, quantifying both the maximum peak-to-peak and A95 peak-to-peak vibration levels.

To minimize the adverse effects of external influences unique to the lift industry, it was considered necessary to prescribe the prerequisites and method of the measurement process as well as the relevant boundaries (start and end points) over which each signal is quantified.

It was also considered necessary to analyse vertical vibration and vertical motion control separately in order to correlate with human response.

Finally, through the inclusion of algorithms amenable to digital programming, this part of ISO 18738 reflects the commercial need in the lift industry for instrumentation capable of rapid automatic computation of the required signal quantities. Analog systems may be used provided that the requirements of this part of ISO 18738 are met.