

This is a preview - click here to buy the full publication



IEEE

IEC/IEEE 62271-37-082

Edition 1.0 2012-10

INTERNATIONAL STANDARD

**High-voltage switchgear and controlgear –
Part 37-082: Standard practice for the measurement of sound pressure levels on
alternating current circuit-breakers**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 29.130.10

ISBN 978-2-83220-406-1

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Terms and definitions	6
3 Acoustical environment	9
3.1 Ambient noise	9
3.2 Wind conditions.....	9
3.3 Air condition	9
3.4 Local topography.....	9
4 Instrumentation	10
4.1 Sound level meter	10
4.1.1 General	10
4.1.2 Preferred sound level meter.....	10
4.1.3 Peak and time average.....	10
4.2 Calibration capability.....	10
4.3 Supplemental instrumentation	10
5 Type test methods	10
5.1 General test requirements	10
5.1.1 General	10
5.1.2 Sound pressure level measurements	10
5.1.3 No load conditions	11
5.1.4 Impulse noise measurement	11
5.1.5 Location of microphone	11
5.1.6 Orientation of microphone	11
5.2 Near-field measurements	11
5.2.1 Type of noise measurements.....	11
5.2.2 Near field measurement with fully opened doors.....	12
5.2.3 Near field measurement with fully closed doors	12
5.3 Far-field measurements.....	12
5.3.1 Type of noise measurements.....	12
5.3.2 Far field measurement.....	13
5.3.3 Equivalent data	14
5.4 Data	14
5.4.1 General	14
5.4.2 Circuit-breaker being tested.....	14
5.4.3 Environment	15
5.4.4 Instrumentation.....	15
5.4.5 Acoustical data	15
5.4.6 Miscellaneous.....	15
5.5 Report.....	15
5.5.1 Completeness of the report.....	15
5.5.2 Conversion	15
6 Field test methods	17
6.1 General	17
6.2 Wind conditions.....	17
6.3 Circuit-breaker operating conditions	17
6.3.1 Operating conditions.....	17

6.3.2	Specific conditions.....	17
6.3.3	Measurements.....	17
6.4	Microphone locations	17
7	Measurements to be taken	18
7.1	Limitation of the measurement	18
7.2	Measurement of impulsive noise.....	18
7.3	Data and report	18
	Bibliography.....	19
	Figure 1 – Location of measurement points with respect to the reference parallelepiped for near field measurements.....	12
	Figure 2 – Location of measurement points with respect to circuit-breaker outline for far field measurements	14
	Figure 3 – Measurement of sound pressure levels of a.c. circuit-breakers – Record form.....	16
	Table 1 – Wind conditions for sound measurements	9

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 37-082: Standard practice for the measurement of sound pressure levels on alternating current circuit-breakers

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation.

IEEE Standards documents are developed within IEEE Societies and Standards Coordinating Committees of the IEEE Standards Association (IEEE-SA) Standards Board. IEEE develops its standards through a consensus development process, which brings together volunteers representing varied viewpoints and interests to achieve the final product. Volunteers are not necessarily members of IEEE and serve without compensation. While IEEE administers the process and establishes rules to promote fairness in the consensus development process, IEEE does not independently evaluate, test, or verify the accuracy of any of the information contained in its standards. Use of IEEE Standards documents is wholly voluntary. IEEE documents are made available for use subject to important notices and legal disclaimers (see <http://standards.ieee.org/IPR/disclaimers.html> for more information).

IEC collaborates closely with IEEE in accordance with conditions determined by agreement between the two organizations.

- 2) The formal decisions of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees. The formal decisions of IEEE on technical matters, once consensus within IEEE Societies and Standards Coordinating Committees has been reached, is determined by a balanced ballot of materially interested parties who indicate interest in reviewing the proposed standard. Final approval of the IEEE standards document is given by the IEEE Standards Association (IEEE-SA) Standards Board.
- 3) IEC/IEEE Publications have the form of recommendations for international use and are accepted by IEC National Committees/IEEE Societies in that sense. While all reasonable efforts are made to ensure that the technical content of IEC/IEEE Publications is accurate, IEC or IEEE cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications (including IEC/IEEE Publications) transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC/IEEE Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC and IEEE do not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC and IEEE are not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or IEEE or their directors, employees, servants or agents including individual experts and members of technical committees and IEC National Committees, or volunteers of IEEE Societies and the Standards Coordinating Committees of the IEEE Standards Association (IEEE-SA) Standards Board, for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC/IEEE Publication or any other IEC or IEEE Publications.
- 8) Attention is drawn to the normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that implementation of this IEC/IEEE Publication may require use of material covered by patent rights. By publication of this standard, no position is taken with respect to the existence or validity of any patent rights in connection therewith. IEC or IEEE shall not be held responsible for identifying Essential Patent Claims for which a license may be required, for conducting inquiries into the legal validity or scope of Patent Claims or determining whether any licensing terms or conditions provided in connection with submission of a Letter of Assurance, if any, or in any licensing agreements are reasonable or non-discriminatory. Users of this standard are expressly advised that determination of the validity of any patent rights, and the risk of infringement of such rights, is entirely their own responsibility.

International Standard IEC/IEEE 62271-37-082 has been prepared by subcommittee 17A: High-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear, in cooperation with the Switchgear Committee of the IEEE Power & Energy Society¹, under the IEC/IEEE Dual Logo Agreement between IEC and IEEE.

This publication is published as an IEC/IEEE Dual Logo standard.

The text of this standard is based on the following IEC documents:

FDIS	Report on voting
17A/1014/FDIS	17A/1023/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

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

A list of all parts of the IEC 62271 series can be found, under the general title *High-voltage switchgear and controlgear*, on the IEC website.

The IEC Technical Committee and IEEE Technical Committee have decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this standard may be issued at a later date.

The contents of the corrigendum of January 2014 have been included in this copy.

¹ A list of IEEE participants can be found at the following URL:
http://standards.ieee.org/downloads/62271-37-082/62271-37-082-2012/62271-37-082_wg-participants.pdf

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 37-082: Standard practice for the measurement of sound pressure levels on alternating current circuit-breakers

1 Scope

This part of International Standard 62271 provides methods for the measurement of sound pressure level produced by outdoor alternating current circuit-breakers in a free-field environment. These methods may also be used indoors or in restricted field, provided that precautions are observed in the measurement and interpretation of the results.