

MÕÕTERELEED JA KAITSESEADISED. OSA 26:
ELEKTROMAGNETILISE ÜHILDUVUSE NÕUDED

Measuring relays and protection equipment - Part 26:
Electromagnetic compatibility requirements

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>See Eesti standard EVS-EN IEC 60255-26:2025 sisaldab Euroopa standardi EN IEC 60255-26:2025 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 18.04.2025.</p> <p>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.</p>	<p>This Estonian standard EVS-EN IEC 60255-26:2025 consists of the English text of the European standard EN IEC 60255-26:2025.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>Date of Availability of the European standard is 18.04.2025.</p> <p>The standard is available from the Estonian Centre for Standardisation and Accreditation.</p>
--	---

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 29.120.70

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardimis- ja Akrediteerimiskeskusele. Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardimis- ja Akrediteerimiskeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardimis- ja Akrediteerimiskeskusega: Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation and Accreditation. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation and Accreditation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation and Accreditation: Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

EUROPEAN STANDARD

EN IEC 60255-26

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2025

ICS 29.120.70

Supersedes EN 60255-26:2013; EN 60255-26:2013/AC:2013

English Version

**Measuring relays and protection equipment - Part 26:
Electromagnetic compatibility requirements
(IEC 60255-26:2023)**

Relais de mesure et dispositifs de protection - Partie 26:
Exigences de compatibilité électromagnétique
(IEC 60255-26:2023)

Messrelais und Schutzeinrichtungen - Teil 26:
Anforderungen an die elektromagnetische Verträglichkeit
(IEC 60255-26:2023)

This European Standard was approved by CENELEC on 2024-10-16. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 95/515/FDIS, future edition 4 of IEC 60255-26, prepared by TC 95 "Measuring relays and protection equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60255-26:2025.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2026-04-30 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2028-04-30 document have to be withdrawn

This document supersedes EN 60255-26:2013 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60255-26:2023 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 61000-4 series NOTE Approved as EN 61000-4 series

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Measuring relays and protection equipment –
Part 26: Electromagnetic compatibility requirements**

**Relais de mesure et dispositifs de protection –
Partie 26: Exigences de compatibilité électromagnétique**



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2023 IEC, Geneva, Switzerland

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 IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Secretariat
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 300 terminological entries in English and French, with equivalent terms in 19 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC -

webstore.iec.ch/advsearchform

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, ...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 300 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 19 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.



INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Measuring relays and protection equipment –
Part 26: Electromagnetic compatibility requirements**

**Relais de mesure et dispositifs de protection –
Partie 26: Exigences de compatibilité électromagnétique**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 29.120.70

ISBN 978-2-8322-6317-4

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	5
1 Scope.....	7
1.1 General.....	7
1.2 Emission.....	7
1.3 Immunity.....	7
2 Normative references.....	7
3 Terms, definitions, and abbreviated terms.....	9
3.1 Terms and definitions.....	9
3.2 Abbreviated terms.....	12
4 Electromagnetic environmental levels.....	13
4.1 General.....	13
4.2 Zone A, severe electromagnetic environment.....	13
4.3 Zone B, typical electromagnetic environment.....	14
5 Emission.....	14
5.1 Radiated emission.....	14
5.2 Conducted emission.....	15
6 Immunity.....	16
6.1 Immunity of enclosure.....	16
6.2 Immunity of auxiliary power supply port.....	17
6.3 Immunity of signal/control port and wired network port.....	20
6.4 Immunity of input and output ports.....	21
6.5 Immunity of earth port.....	24
7 Test set-up and procedures.....	24
7.1 General.....	24
7.2 Emission.....	25
7.2.1 General.....	25
7.2.2 Radiated emission.....	26
7.2.3 Conducted emission.....	26
7.3 Immunity.....	26
7.3.1 General.....	26
7.3.2 Electrostatic discharge immunity test.....	28
7.3.3 Radiated electromagnetic field immunity test.....	29
7.3.4 Electrical fast transient/burst immunity test.....	31
7.3.5 Damped oscillatory wave immunity test.....	32
7.3.6 Surge immunity test.....	33
7.3.7 Conducted RF immunity test.....	35
7.3.8 Conducted power frequency immunity test on binary inputs.....	37
7.3.9 Power frequency magnetic field immunity test.....	38
7.3.10 Voltage dips and short interruptions test (AC or DC).....	38
7.3.11 Ripple on DC input power port immunity test.....	39
7.3.12 Gradual shutdown / start-up tests.....	40
8 Criteria for acceptance.....	40
8.1 Emission.....	40
8.2 Immunity.....	41
9 Test report.....	42
Annex A (normative) Power frequency immunity tests on binary inputs.....	43

A.1	General.....	43
A.2	Test classes.....	43
A.3	Test equipment.....	43
A.3.1	General.....	43
A.3.2	Test generator.....	43
A.3.3	Verification of the test generator.....	44
A.3.4	Coupling networks.....	44
A.4	Test set-up.....	44
A.4.1	General.....	44
A.4.2	Earthing connections.....	44
A.4.3	Auxiliary equipment.....	44
Annex B (informative)	Background information for power frequency tests.....	47
Annex C (informative)	Background information about spot frequency tests.....	48
Annex D (informative)	EMC risk assessment.....	50
D.1	EMC design risk assessment.....	50
D.2	Product platform risk assessment.....	52
Annex E (informative)	Considerations regarding radio interfaces.....	54
Annex F (informative)	Immunity test to be considered in future.....	55
Bibliography.....		56
Figure 1	Gradual shutdown / start-up test.....	40
Figure A.1	Example of Zone A differential mode tests.....	45
Figure A.2	Example of Zone B differential mode tests.....	45
Figure A.3	Example of Zone A and Zone B common mode tests.....	46
Table 1	Radiated emission tests – Enclosure port.....	14
Table 2	Required highest frequency for radiated measurement.....	15
Table 3	Conducted emission tests – AC and DC auxiliary power supply port.....	15
Table 4	Conducted emission tests – Wired network port.....	15
Table 5	Immunity tests – Enclosure port.....	16
Table 6	Immunity tests – Auxiliary power supply port.....	17
Table 7	Immunity tests – signal/control port and wired network port.....	20
Table 8	Immunity tests – Input and output port.....	21
Table 9	Immunity tests – Earth port.....	24
Table 10	Radiated emission test.....	26
Table 11	Conducted emission test.....	26
Table 12	Electrostatic discharge immunity test.....	28
Table 13	Radiated electromagnetic field immunity test (frequency sweep).....	29
Table 14	Radiated electromagnetic field immunity test (spot frequencies).....	30
Table 15	Electrical fast transient/burst immunity test.....	31
Table 16	Damped oscillatory wave immunity test.....	32
Table 17	Surge immunity test.....	33
Table 18	Conducted RF immunity test (frequency sweep).....	35
Table 19	Conducted RF immunity test (spot frequencies).....	36
Table 20	Conducted power frequency immunity test on binary inputs.....	37

Table 21 – Power frequency magnetic field immunity test	38
Table 22 – Voltage dips and short interruptions test (AC or DC)	38
Table 23 – Ripple on DC input power port immunity test	39
Table 24 – Gradual shutdown and start-up test	40
Table 25 – Acceptance criteria for immunity tests	41
Table C.1 – Selection of spot frequencies	48
Table D.1 – Risk assessment based on a hardware design modification	51
Table D.2 – Risk assessment, selecting representative EUT configuration(s).....	52
Table E.1 – Listed standard with relevance	54
Table F.1 – Immunity test to be considered in future	55

This document is a preview generated by EVS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

MEASURING RELAYS AND PROTECTION EQUIPMENT –**Part 26: Electromagnetic compatibility requirements**

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. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements 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.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC 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 transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is 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 its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees 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 Publication or any other IEC 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 some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 60255-26 has been prepared by IEC technical committee 95: Measuring relays and protection equipment. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2013. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) update of normative references
- b) introduction of a wired network port and signal/control port in accordance with CISPR 32;
- c) introduction of low-power instrument transformer (LPIT) and battery monitor port;
- d) expansion of the frequency range on radiated radio-frequency immunity test up to 6 GHz;
- e) updated requirements on electrostatic discharge tests;
- f) introduction of fast damped oscillatory wave test for Zone A applications;
- g) specification of higher immunity requirements on power frequency magnetic field tests;

- h) update of the spot frequency test and addition of a new annex with background information;
- i) addition of details and further guidance on the relay settings;
- j) additional test condition for AC voltage dips and interruptions;
- k) addition of an annex about EMC risk assessments;
- l) addition of an annex on radio interfaces.

The text of this International Standard is based on the following documents:

Draft	Report on voting
95/515/FDIS	95/525/RVD

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

The language used for the development of this International Standard is English

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all the parts in the IEC 60255 series, published under the general title *Measuring relays and protection equipment*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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

MEASURING RELAYS AND PROTECTION EQUIPMENT –

Part 26: Electromagnetic compatibility requirements

1 Scope

1.1 General

This part of IEC 60255 specifies the requirements for electromagnetic compatibility for measuring relays and protection equipment. It is applicable to measuring relays and protection equipment and combinations of devices to form schemes for power system protection including the control, monitoring, communication and process interface equipment used with those systems.

Tests specified in this document are not required for equipment not incorporating electronic circuits, for example electromechanical relays.

The requirements specified in this document are applicable to measuring relays and protection equipment in a condition representative of how new equipment is provided by the manufacturer. All tests specified are type tests only.

1.2 Emission

This document specifies limits and test methods, for measuring relays and protection equipment in relation to electromagnetic emissions which might cause interference in other equipment.

These emission limits represent electromagnetic compatibility requirements and have been selected to ensure that the disturbances generated by measuring relays and protection equipment, operated normally in substations and power plants, do not exceed a specified level which could prevent other equipment from operating as intended.

Test requirements are specified for the enclosure, auxiliary power supply ports, input/output ports, signal/control ports and wired network ports.

1.3 Immunity

This document specifies the immunity test requirements for measuring relays and protection equipment in relation to continuous and transient, conducted and radiated disturbances, including electrostatic discharges.

These test requirements represent the electromagnetic compatibility immunity requirements and have been selected so as to ensure an adequate level of immunity for measuring relays and protection equipment, operated normally in substations and power plants.

NOTE 1 Product safety considerations are not covered in this document.

NOTE 2 In special cases, situations will arise where the levels of disturbance could exceed the levels specified in this document, for example where a hand-held transmitter or a mobile telephone is used close to measuring relays and protection equipment. In these instances, special precautions and procedures could be needed.

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.

IEC 60255-1:2022, *Measuring relays and protection equipment – Part 1: Common requirements*

IEC 61000-4-2:2008, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 61000-4-3:2020, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*

IEC 61000-4-4:2012, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test*

IEC 61000-4-5:2014, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*
IEC 61000-4-5:2014/AMD1:2017

IEC 61000-4-6:2013, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

IEC 61000-4-8:2009, *Electromagnetic compatibility (EMC) – Part 4-8: Testing and measurement techniques – Power frequency magnetic field immunity test*

IEC 61000-4-11:2020, *Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current up to 16 A per phase*

IEC 61000-4-16:2015, *Electromagnetic compatibility (EMC) – Part 4-16: Testing and measurement techniques – Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz*

IEC 61000-4-17:1999, *Electromagnetic compatibility (EMC) – Part 4-17: Testing and measurement techniques – Ripple on d.c. input power port immunity test*
IEC 61000-4-17:1999/AMD1:2001
IEC 61000-4-17:1999/AMD2:2008

IEC 61000-4-18:2019, *Electromagnetic compatibility (EMC) – Part 4-18: Testing and measurement techniques – Damped oscillatory wave immunity test*

IEC 61000-4-29:2000, *Electromagnetic compatibility (EMC) – Part 4-29: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations on d.c. input power port immunity tests*

CISPR 11:2015, *Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement*
CISPR 11:2015/AMD1:2016
CISPR 11:2015/AMD2:2019

CISPR 32:2015, *Electromagnetic compatibility of multimedia equipment – Emission requirements*
CISPR 32:2015/AMD1:2019