
**Nosljive elektronske naprave in tehnologije - 201-1. del: Elektronski tekstil -
Metode merjenja osnovnih lastnosti prevodnih prej (IEC 63203-201-1:2022)**

Wearable electronic devices and technologies - Part 201-1: Electronic Textile -
Measurement methods for basic properties of conductive yarns (IEC 63203-201-1:2022)

Tragbare elektronische Geräte und Technologien - Teil 201-1: Elektronische Textilien -
Messverfahren für die grundlegenden Eigenschaften von leitfähigen Garnen (IEC 63203-
201-1:2022)

Technologies et dispositifs électroniques prêts-à-porter - Partie 201-1: Textile
électronique - Méthodes de mesure des propriétés fondamentales des fils conducteurs
(IEC 63203-201-1:2022)

Ta slovenski standard je istoveten z: EN IEC 63203-201-1:2022

ICS:

59.080.80 Inteligentne tekstilije Smart textiles

SIST EN IEC 63203-201-1:2022 **en**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN IEC 63203-201-1

June 2022

ICS 59.080.80; 59.080.20

English Version

**Wearable electronic devices and technologies - Part 201-1:
Electronic textile - Measurement methods for basic properties of
conductive yarns
(IEC 63203-201-1:2022)**

Technologies et dispositifs électroniques prêts-à-porter -
Partie 201-1: Textile électronique - Méthodes de mesure
des propriétés fondamentales des fils conducteurs
(IEC 63203-201-1:2022)

Tragbare elektronische Geräte und Technologien - Teil 201-
1: Elektronische Textilien - Messverfahren für die
grundlegenden Eigenschaften von leitfähigen Garnen
(IEC 63203-201-1:2022)

This European Standard was approved by CENELEC on 2022-05-31. 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, Turkey 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

EN IEC 63203-201-1:2022 (E)**European foreword**

The text of document 124/175/FDIS, future edition 1 of IEC 63203-201-1, prepared by IEC/TC 124 "Wearable electronic devices and technologies" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 63203-201-1:2022.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2023-02-28
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2025-05-31

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 63203-201-1:2022 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 63203-101-1:2021 NOTE Harmonized as EN IEC 63203-101-1:2021 (not modified)

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60468	1974	Method of measurement of resistivity of metallic materials	-	-
ISO 105-E04	-	Textiles - Tests for colour fastness - Part E04: Colour fastness to perspiration	EN ISO 105-E04	-
ISO 139	-	Textiles - Standard atmospheres for conditioning and testing	EN ISO 139	-
ISO 6330	-	Textiles - Domestic washing and drying procedures for textile testing	EN ISO 6330	-
- https://standards.iteh.ai/c	-	Textiles and textile products - Electrically conductive textiles - Determination of the linear electrical resistance of conductive tracks	EN 16812	2016



IEC 63203-201-1

Edition 1.0 2022-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Wearable electronic devices and technologies –
Part 201-1: Electronic textile – Measurement methods for basic properties of
conductive yarns**

**Technologies et dispositifs électroniques prêts-à-porter –
Partie 201-1: Textile électronique – Méthodes de mesure des propriétés
fondamentales des fils conducteurs**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 59.080.80; 59.080.20

ISBN 978-2-8322-1103-6

**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.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references	6
3 Terms and definitions	6
4 Materials and structure	7
4.1 Classifications of conductive fibres.....	7
4.1.1 Structure	7
4.1.2 Length	7
4.1.3 Basic materials for non-conductive components of fibre.....	8
4.1.4 Conductive components for conductive fibres	8
4.2 Structure of conductive yarns.....	8
5 Atmospheric conditions for measurement and conditioning	9
6 Measurement methods for characteristics of conductive yarn	9
6.1 Electrical properties	9
6.1.1 Resistance of conductive yarn.....	9
6.1.2 Fusing current.....	9
6.2 Perspiration resistance	10
6.2.1 Specimens.....	10
6.2.2 Artificial perspiration.....	10
6.2.3 Procedure.....	10
6.2.4 Report of the results	10
6.3 Detergent resistance	11
6.3.1 Specimens.....	11
6.3.2 Detergent	11
6.3.3 Procedure.....	11
6.3.4 Report of the results	11
Bibliography.....	12
Table 1 – Typical cross-sectional diagrams of conductive fibres	7
Table 2 – Constructions of conductive yarns	8

INTERNATIONAL ELECTROTECHNICAL COMMISSION

WEARABLE ELECTRONIC DEVICES AND TECHNOLOGIES –

**Part 201-1: Electronic textile –
Measurement methods for basic properties of conductive yarns**

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 63203-201-1 has been prepared by IEC technical committee 124: Wearable electronic devices and technologies. It is an International Standard.

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

Draft	Report on voting
124/175/FDIS	124/180/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/standardsdev/publications.

A list of all parts in the IEC 63203 series, published under the general title *Wearable electronic devices and technologies*, 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.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN IEC 63203-201-1:2022

<https://standards.iteh.ai/catalog/standards/sist/8ee64f5f-3bc6-4a39-b0fa-bd835b2ad5d6/sist-en-iec-63203-201-1-2022>