SVENSK STANDARD

SS-EN IEC 63203-201-2, utg 1:2023

Fastställd	Sida	Ansvarig kommitté
2023-02-22	1 (19)	SEK TK IoT

Bärbar elektronik – Del 201-2: Elektroniska textiler – Mätmetoder för grundläggande egenskaper för ledande tyger och isolermateriel

Wearable electronic devices and technologies – Part 201-2: Electronic textile – Measurement methods for basic properties of conductive fabrics and insulation materials

Som svensk standard gäller europastandarden EN IEC 63203-201-2:2022. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 63203-201-2:2022.

Nationellt förord

Europastandarden EN IEC 63203-201-2:2022

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC

– **IEC 63203-201-2, First edition, 2022 - Wearable electronic devices and technologies - Part 201-2: Electronic textile - Measurement methods for basic properties of conductive fabrics and insulation materials**

utarbetad inom International Electrotechnical Commission, IEC.

ICS 59.080.80; 59.080.30

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 63203-201-2

June 2022

ICS 59.080.80; 59.080.30

English Version

Wearable electronic devices and technologies - Part 201-2: Electronic textile - Measurement methods for basic properties of conductive fabrics and insulation materials (IEC 63203-201-2:2022)

Technologies et dispositifs électroniques prêts-à-porter - Partie 201-2: Textile électronique - Méthodes de mesure des propriétés fondamentales des étoffes conductrices et des matériaux isolants
(IEC 63203-201-2:2022)

Tragbare elektronische Geräte und Technologien - Teil 201-2: Elektronische Textilien - Messverfahren für die grundlegenden Eigenschaften von leitfähigen Textilien und Isolationswerkstoffen
(IEC 63203-201-2:2022)

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

Ref. No. EN IEC 63203-201-2:2022 E

SEK Svensk Elstandard SS-EN IEC 63203-201-2, utg 1:2023

European foreword

The text of document 124/176/FDIS, future edition 1 of IEC 63203-201-2, 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 63203-201-2:2022.

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 63203-201-2:2022 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 61557-2:2019 NOTE Harmonized as EN IEC 61557-2:2021 (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.

Publication	Year	Title	EN/HD	Year
IEC 60243-1	2013	Electric strength of insulating materials - Test methods - Part 1: Tests at power frequencies	EN 60243-1	2013
IEC 60468	1974	Method of measurement of resistivity of metallic materials	-	-
IEC 62631-3-1	2016	Dielectric and resistive properties of solid insulating materials - Part 3-1: Determination of resistive properties (DC methods) - Volume resistance and volume resistivity - General method	EN 62631-3-1	2016
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	-
-	-	Textiles and textile products – Electrically conductive textiles – Determination of the linear electrical resistance of conductive tracks	EN 16812	2016

IEC 63203-201-2

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Wearable electronic devices and technologies – Part 201-2: Electronic textile – Measurement methods for basic properties of conductive fabrics and insulation materials

Technologies et dispositifs électroniques prêts-à-porter – Partie 201-2: Textile électronique – Méthodes de mesure des propriétés fondamentales des étoffes conductrices et des matériaux isolants

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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WEARABLE ELECTRONIC DEVICES AND TECHNOLOGIES –

Part 201-2: Electronic textile – Measurement methods for basic properties of conductive fabrics and insulation materials

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.
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IEC 63203-201-2 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
124/176/FDIS	124/181/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.

INTRODUCTION

This document contains the provisions for conductive fabrics and insulation materials used for electronic textiles and measurement methods for their properties. When a conductive fabric becomes a wearable electronics product, it plays the role of conductive traces, electrodes and the like in clothes-type wearable devices. Therefore, measurement methods are defined for the characteristics of such conductive fabrics.

The IEC 63203-2 series relates mainly to measurement methods for electronic textile (e- textile) of wearable electronics.

The IEC 63203-2 series is divided into parts according to each category of electronic textile. Each part is prepared as a generic specification containing fundamental information for the area of printed electronics.

The IEC 63203-2 series consists of the following parts:

IEC 63203-201: E-textile materials

IEC 63203-201-1: E-textile materials – Conductive yarn

IEC 63203-201-2: E-textile materials – Conductive fabrics and insulation materials

IEC 63203-202: Passive electric parts for e-textiles

IEC 63203-202-1: Passive e-textile parts – Connectors for e-textile applications

IEC 63203-203: E-textile functional elements

IEC 63203-204: E-textile systems (evaluation method for garment-type wearable systems)

IEC 63203-204-1: E-textile systems – Test method for assessing washing durability of leisurewear and sportswear e-textile systems

(Subsequent parts will be prepared according to other categories.)

Furthermore, sectional specifications, blank detail specifications, and detail specifications of each category will follow these parts.

WEARABLE ELECTRONIC DEVICES AND TECHNOLOGIES –

Part 201-2: Electronic textile – Measurement methods for basic properties of conductive fabrics and insulation materials

1 Scope

This part of IEC 63203-201 specifies the provisions for conductive fabrics and insulation materials used for electronic textiles and measurement methods for their properties.

Conductive fabrics covered by this document are basic materials in electronic textiles and are mainly used as conductive traces, electrodes and the like in clothes-type wearable devices. This document does not cover high-resistance conductive fabrics used for antistatic purposes and heater applications.

Insulating materials handled in this document are materials used for electrical insulation of conductive parts in electronic textiles. They include materials for covering the conductive parts, and general fabrics constituting the basic structure of clothes-type wearable devices.

This document does not define the required characteristics of the conductive fabric and insulation materials; rather, it specifies measurement methods for general and electrical properties of the conductive fabric and insulation materials.

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 60243-1:2013, *Electric strength of insulating materials – Test methods – Part 1: Tests at power frequencies*

IEC 60468:1974, *Method of measurement of resistivity of metallic materials*

IEC 62631-3-1:2016, *Dielectric and resistive properties of solid insulating materials – Part 3-1: Determination of resistive properties (DC methods) – Volume resistance and volume resistivity – General method*

ISO 105-E04, *Textiles − Tests for colour fastness − Part E04: Colour fastness to perspiration*

ISO 139, *Textiles − Standard atmospheres for conditioning and testing*

ISO 6330, *Textiles – Domestic washing and drying procedures for textile testing*

EN 16812:2016, *Textiles and textile products – Electrically conductive textiles – Determination of the linear electrical resistance of conductive tracks*