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INTERNATIONAL STANDARD

NORME INTERNATIONALE

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Wearable electronic devices and technologies – Part 402-1: Performance measurement of fitness wearables – Test methods of glove-type motion sensors for measuring finger movements

Technologies et dispositifs électroniques prêts-à-porter – Partie 402-1: Mesure des performances des dispositifs prêts-à-porter d'activité physique – Méthodes d'essai des capteurs de mouvement type gant pour le mesurage des mouvements digitaux

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WEARABLE ELECTRONIC DEVICES AND TECHNOLOGIES –

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

Draft	Report on voting
124/195/FDIS	124/204/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 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- withdrawn,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.

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WEARABLE ELECTRONIC DEVICES AND TECHNOLOGIES –

Part 402-1: Performance measurement of fitness wearables – Test methods of glove-type motion sensors for measuring finger movements

1 Scope

This document specifies test methods for wearable glove-type motion sensors to measure finger movements. The measurement methods include goniometric parameters related to the finger postures and flexion dynamics. Glove-type motion sensors are the type of gloves considered within the scope of this document for testing and measurement. This document describes direct and indirect measurement methods. In the direct measurement method, the angles of the joints of each finger are directly measured by a goniometer. The indirect method uses a measurement device such as a servomotor-based angle-measuring device. This document is applicable to angle measurement of all gloves with glove-type motion sensors without limitation of the device technology or size.

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 62047-6, *Semiconductor devices – Micro-electromechanical devices – Part 6: Axial fatigue testing methods of thin film materials*

IEC 62951-1, *Semiconductor devices – Flexible and stretchable semiconductor devices – Part 1: Bending test method for conductive thin films on flexible substrates*

ISO 291, *Plastics – Standard atmospheres for conditioning and testing*

ISO 21420:2020, *Protective gloves – General requirements and test methods*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62047-6, IEC 62951-1, ISO 291, ISO 21420, and the following apply.

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3.1 General terms

3.1.1
glove-type motion sensor
sensor mounted in or on a glove which is worn for gesture recognition

Note 1 to entry: See Annex A for details.