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Tekstilije - Pametne tekstilije - Metoda preskušanja za tekstilni vmesnik s kapacitivnimi zasloni na dotik (ISO/DIS 17971:2024)

Textiles - Smart Textiles - Test method for fabric interface with capacitive touchscreens (ISO/DIS 17971:2024)

Textiles - Textiles intelligents - Méthode d'essai de l'interface étoffe avec les écrans tactiles capacitifs (ISO/DIS 17971:2024)

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Textiles — Smart Textiles — Test method for fabric interface with capacitive touchscreens

Textiles — Textiles intelligents — Méthode d'essai de l'interface étoffe avec les écrans tactiles capacitifs

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Foreword

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This document was prepared by Technical Committee *[or Project Committee]* ISO/TC *38*, *textiles*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

With the improvement of consumers' living condition, wearable smart textiles came into being, and product types emerge one after another. There are more and more interactions between textiles and touch-screen electronic products, for example, touch-screen gloves, because of their novel functions, warmth and fashion, have considerable sales in all markets around the world, whether in stores or online sales platforms, for personal use or for workplace use.

a)

b)

Figure 1 — An example of touch-screen textile product
a) knitted gloves, b) coated gloves

The fabric with touch screen function uses conductive materials, such as conductive fibres, through which the human current is transmitted to the capacitive screen, so as to achieve the touch screen effect. As an emerging commodity, the market demand for the products is strong, and the market prospect is unanimously optimistic by investors. However, there are no corresponding test methods and relevant requirements within the global standards, and the quality of this touchscreen textile product is various.

The development of test methods for measuring the performance of textile touch screen is suitable for all types of fabrics with controllable capacitive screen, which meets the needs of the market at current stage of scientific and technological development. The formulation of this standard will provide evidence for the test and evaluation of the exchange effect between this type of textiles and touch screen electronic products which fills the blank in this area.

Textiles — Smart Textiles — Test method for fabric interface with capacitive touchscreens

1 Scope

This document specifies a test method for determining the screen touch property of the textiles. The method is applicable to all types of fabrics which are intended to be used for products that could handle the screen.

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.

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

IEC 62908-12-10, *Touch and interactive displays – Part 12-10: Measurement methods of touch displays – Touch and electrical performance*

IEC 62908-12-20, *Touch and interactive displays – Part 12-20: Measurement methods of touch displays – Multi-touch performance*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
screen touch property
property which is able to control the capacitive display through touch screen induction.

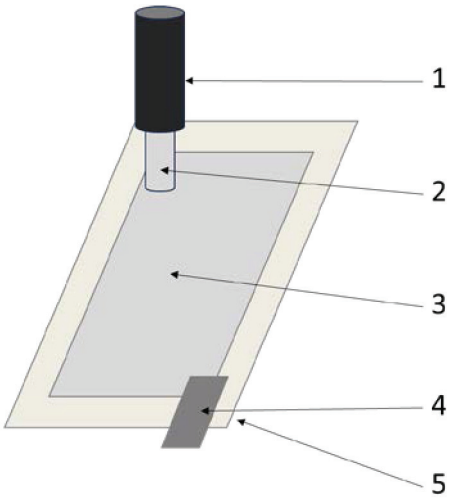
4 Principle

A test specimen is subjected to a testing head, and then tests are carried out by touching the capacitive display device through single point touch, multi-points and sliding touch under standard conditions. Deviation of precision and response ratio for single point touch, adjacent touch distance for multi-point touch, linearity for sliding touch will be stated.

5 Apparatus

5.1 Test equipment

The testing equipment includes mobile arm, reference screen (5.1.1), test bar (5.1.2) and platform, as shown in Figure 2. Test equipment for touch performance measurement of touch displays was provided in IEC 62908-12-10 and IEC 62908-12-20. The frequently used equipment is showed in the Annex A. The force used for testing should be 0,1 N to 10,0 N.



Key

1	moving arm	4	electrical interface
2	test bar	5	stage
3	reference screen		

Figure 2 — Composition of the test equipment

5.1.1 Reference screen

A capacitive multi-touch reference screen (without screen protective membrane). Before testing, it shall be placed in the test atmosphere for at least 2 h.

The parameters for the reference screen shall comply with below:

a) Minimum force to stand: 50 N.

b) Dimension: meet the travel range of mechanical device.

c) Precision of single touch ≤ 0,50 mm; sensitivity shall be 100 % response for single point test using bare test bar (test at least 5 times).

d) Linearity of slide touch ≤ 0,50 mm; sensitivity shall be no leakage point for slide test using bare test bar.

e) Least response distance of two touchpoints: not more than 10,0 mm.

NOTE Testing condition for above reference screen is carried out in atmosphere with the diameter of cylindrical test bar of 6 mm and 0,1 N to 10,0 N pressure or extra 0,2 mm in the direction vertical to the reference screen.

5.1.2 Cylindrical test bar

The diameter *D* of the cylindrical test bar, shown in Figure 3, shall be (6,0 ± 0,01) mm. The material used for the cylindrical test bar shall have a resistivity of 10^2 to 10^4 Ω · cm and a hardness greater than R119, meeting the requirements of IEC 62908-12-10. Examples of suitable materials are brass or a conductive polyamide resin. If both parties agree, test bars of other diameters or shapes can be used.