



NSAI
Standards

Irish Standard
I.S. EN 16812:2016

Textiles and textile products - Electrically conductive textiles - Determination of the linear electrical resistance of conductive tracks

I.S. EN 16812:2016

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN 16812:2016

Published:

2016-04-27

This document was published under the authority of the NSAI and comes into effect on:

2016-05-15

ICS number:

59.080.01

NOTE: If blank see CEN/CENELEC cover page

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN 16812:2016 is the adopted Irish version of the European Document EN 16812:2016, Textiles and textile products - Electrically conductive textiles - Determination of the linear electrical resistance of conductive tracks

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page is intentionally left blank

EUROPEAN STANDARD

EN 16812

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2016

ICS 59.080.01

English Version

**Textiles and textile products - Electrically conductive
textiles - Determination of the linear electrical resistance
of conductive tracks**

Textiles et produits textiles - Textiles électriquement
conducteurs - Détermination de la résistance
électrique linéaire des pistes conductrices

Textilien und textile Erzeugnisse - Elektrisch leitfähige
Textilien - Bestimmung des linearen elektrischen
Widerstands von Leiterbahnen

This European Standard was approved by CEN on 13 February 2016.

CEN 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 CEN 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 CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents	Page
European foreword.....	3
1 Scope	4
2 Normative references	4
3 Terms and definitions	4
4 Principle of test	5
5 Test equipment	5
6 Test specimens	6
6.1 Number of test specimens.....	6
6.2 Dimensions of specimens.....	6
6.3 Conditioning.....	6
6.4 Relaxation.....	6
7 Test set-up	6
7.1 General.....	6
7.2 Test set-up for a “four electrode – four wire method”.....	6
7.3 Test set-up for a “two electrode – four wire method”.....	7
8 Test procedure	8
8.1 General.....	8
8.2 Preparation of conductive track contact points.....	8
8.3 Tensioning.....	9
8.3.1 General.....	9
8.3.2 Yarns.....	9
8.3.3 Fabrics.....	9
8.4 Contacting/ clamping of the specimen.....	9
8.5 Modus operandi and calculation of results.....	10
8.5.1 “Four electrode – four wire method”.....	10
8.5.2 “Two electrode - four wire measurement”.....	10
9 Test report	11
Annex A (informative) Four point (wire) Kelvin method	13
A.1 “Four electrode – four wire method”.....	13
A.2 “Two electrode – four wire method”.....	14
Bibliography	15

European foreword

This document (EN 16812:2016) has been prepared by Technical Committee CEN/TC 248 “Textiles and textile products”, the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2016, and conflicting national standards shall be withdrawn at the latest by October 2016.

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

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

EN 16812:2016 (E)

1 Scope

This European Standard describes a test method for the determination of the linear electric resistance of conductive tracks for textile structures or intended for application in/ to textiles, e.g. yarns, printed or coated tracks, ropes, ribbons and webbing.

This European Standard is designed for materials showing ohmic behaviour.

This European Standard is designed for conductive tracks where electrical contact between the measurement electrodes and the conductive track is possible.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12127, *Textiles — Fabrics — Determination of mass per unit area using small samples*

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

3 Terms and definitions

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

3.1

textile-based electrically conductive track

electrically conductive part of the textile having a length to width ratio of minimum 10 to 1

Note 1 to entry: Examples for textile based electrically conductive tracks and how to determine their length (L) and width (w) are given in Figure 1

3.2

Ohmic behaviour

conductor's behaviour following Ohm's law

Note 1 to entry: Ohm's law is a fundamental law of electricity, stating that the voltage at the terminals of an ideal resistor is proportional to the current in the resistor (voltage U across the terminals equals resistance R times current I) [www.electropedia.org IEV ref 131-15-08].

Note 2 to entry: In this standard 'U' is used for the measured voltage, according to the IEC electropedia (www.electropedia.org).

3.3

linear electrical resistance R_l

electrical resistance per unit length of a track, as determined in this standard (expressed in ohm/m)

3.4

wire

lead or measurement point used in the four point Kelvin method

3.5

electrode

contact between the measurement wire and the sample

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-