Irish Standard
I.S. EN 50289-4-17:2015

Communication cables - Specifications for test methods - Part 4-17: Test methods for UV resistance evaluation of the sheath of electrical and optical fibre cable

I.S. EN 50289-4-17:2015

Incorporating amendments/corrigenda/National Annexes issued since publication:

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

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National Foreword

I.S. EN 50289-4-17:2015 is the adopted Irish version of the European Document EN 50289-4-17:2015, Communication cables - Specifications for test methods - Part 4-17: Test methods for UV resistance evaluation of the sheath of electrical and optical fibre cable

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

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50289-4-17

October 2015

ICS 33.120.10

Supersedes EN 50289-4-17:2011

English Version

Communication cables - Specifications for test methods - Part 4-17: Test methods for UV resistance evaluation of the sheath of electrical and optical fibre cable

Câbles de communication - Spécifications des méthodes d'essais - Partie 4-17: Méthodes d'essai pour évaluer la résistance aux UV des gaines des câbles électriques et des câbles à fibre optique

Kommunikationskabel - Specifikationen für Prüfverfahren - Teil 4-17: Prüfverfahren zur Ermittlung der UV-Beständigkeit der Mäntel elektrischer und optischer Kabel

This European Standard was approved by CENELEC on 2015-08-31. 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.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

This document (EN 50289-4-17:2015) has been prepared by CLC/TC 46X “Communication cables”.

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2016-08-31
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2018-08-31

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

This document supersedes EN 50289-4-17:2011.

EN 50289-4-17:2015 includes the following significant technical changes with respect to EN 50289-4-17:2011:

Annex A has been downgraded as “informative”.

Annexes B and C have been deleted and a new Annex B has been introduced that is no longer requirements but only a guideline to the interpretation and use.

Introduction

UV hazard assessment for synthetic compounds is possible using a number of UV sources. For the purposes of this European Standard, three alternative methods are given.

1) Method A uses a xenon arc source to simulate the UV effect on cable sheath. The effect is measured by the variation of mechanical characteristics and/or change in colour after exposure.

2) Method B uses a fluorescent lamp to simulate the UV effect on cable sheath. Two different lamps may be used; type I (called UV-A lamps) and type II (called UV-B lamps). The effect is measured as for method A, by the variation of mechanical characteristics and/or change in colour after exposure.

3) Method C uses mercury vapour lamp to simulate the UV effect on cable sheath. As for methods A and B, the effect is determined by the variation of mechanical characteristics and/or change in colour after exposure. This test has been typically used for telecommunication cables.

For outdoor cable application only, the test specimens are periodically subjected to water attack, for methods A and B. A recent modification of method C now allows for a water immersion cycle.

For method C, the round robin tests made without water (see Annex B) indicate the method may be applicable to outdoor environments.

Other sources and determination methods are capable of detecting and analysing the UV hazard for a cable sheath. Examples of such methods are metal halide lamps or sunshine carbon arc lamps, in combination with proper filters in order to cut off most radiation having wavelengths lower than 290 nm. Contracting parties may agree to use such other methods, but such methods cannot claim conformity to this European Standard. If used, it is recommended that such methods have at least equivalent sensitivity and detection levels as those in this European Standard.

Informative Annex B gives guidelines for the use and interpretation of results.

NOTE It is important to recall the introduction to EN ISO 4892-1:2000, which says, "*The relative durability of materials in actual-use exposures can be very different depending on the location of the exposure because of differences in UV radiation, time of wetness, temperature, pollutants and other factors. Therefore, even if results from a specific accelerated laboratory test are found to be useful for comparing the relative durability of materials exposed in a particular outdoor location or in particular actual-use conditions, it cannot be assumed that they will be useful for determining the relative durability of materials exposed in a different outdoor location or in different actual-use conditions.*"

1 Scope

This European Standard describes three methods to determine the UV resistance of sheath materials for electric and for optical fibre cables. These tests apply for outdoor and indoor cable applications according to the product standard. The samples of sheath are taken from the finished cables.

Although this test method European Standard is written principally for communication cables, it may be used for energy cables if called up by the relevant product standard.

Where a sheath is of cross-linked (thermosetting) material, it should be recalled that the preparation of moulded plaques should be made before crosslinking.

Methods differ by the nature of the UV source.

Due to the excessive time to failure, the methods described are inappropriate to products where UV resistance is conferred by ≥ 2,0 % carbon black meeting the dispersion requirements defined in EN 50290-2-24.

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 16472:2014, *Plastics — Method for artificial accelerated photoageing using medium pressure mercury vapour lamps*

EN 60811-202, *Electric and optical fibre cables — Test methods for non-metallic materials — Part 202: General tests - Measurement of thickness of non-metallic sheath (IEC 60811-202)*

EN 60811-501, *Electric and optical fibre cables — Test methods for non-metallic materials — Part 501: Mechanical tests — Tests for determining the mechanical properties of insulating and sheathing compounds (IEC 60811-501)*

EN ISO 4892-1:2000, *Plastics — Methods of exposure to laboratory light sources — Part 1: General guidance (ISO 4892-1:1999)*

EN ISO 4892-2:2013, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps (ISO 4892-2:2013)*

ISO 9370, *Plastics — Instrumental determination of radiant exposure in weathering tests — General guidance and basic test method*

3 Terms and definitions

For the purposes of this document, the following term and definition applies.

3.1
median value
when several test results have been obtained and ordered in an increasing (or decreasing) succession, middle value if the number of available value is odd, and mean of the two middle values if the number is even

[SOURCE: EN 60811-100:2012, 3.1)