

Irish Standard I.S. EN 50143:2009

Cables for signs and luminousdischarge-tube installations operating from a no-load rated output voltage exceeding 1 000 V but not exceeding 10 000 V

© NSAI 2009

No copying without NSAI permission except as permitted by copyright law.

Incorporating amendments/corrigenda issued since publication:

This document replaces: I.S. EN 50143:1999

This document is based on: EN 50143:2009 EN 50143:1997 Published: 26 March, 2009 12 February, 1999

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

9 July, 2009

ICS number: 29.060.20

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 Price Code:

Údarás um Chaighdeáin Náisiúnta na hÉireann

**EUROPEAN STANDARD** 

EN 50143

NORME EUROPÉENNE EUROPÄISCHE NORM

March 2009

ICS 29.060.20

Supersedes EN 50143:1997 + A1:2003

## English version

# Cables for signs and luminous-discharge-tube installations operating from a no-load rated output voltage exceeding 1 000 V but not exceeding 10 000 V

Câbles pour installations d'enseignes et de tubes à décharges lumineuses fonctionnant avec une tension à vide supérieure à 1 000 V mais ne dépassant pas 10 000 V Leitungen für Leuchtröhrengeräte und Leuchtröhren-Anlagen mit einer Leerlaufspannung von über 1 000 V, aber nicht über 10 000 V

This European Standard was approved by CENELEC on 2009-02-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

## **CENELEC**

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

Central Secretariat: avenue Marnix 17, B - 1000 Brussels

© 2009 CENELEC - All rights of exploitation in any form and by any means reserved worldwide for CENELEC members.

EN 50143:2009

– 2 –

## **Foreword**

This European Standard was prepared by the Technical Committee CENELEC TC 20, Electric cables.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50143 on 2009-02-01.

This European Standard supersedes EN 50143:1997 + A1:2003.

The following dates were fixed:

 latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement

(dop) 2010-02-01

 latest date by which the national standards conflicting with the EN have to be withdrawn

(dow) 2012-02-01

## **Contents**

Intr	oduc	tion	. 5			
1	Scope					
2	Norm	native references	. 6			
3	Term	s and definitions	. 7			
4	Rate	d voltage	. 7			
5	Gene	ral requirements for the construction of cables	. 8			
	5.1	Conductors				
	5.2	Insulation				
	5.3	Oversheath				
	5.4	Non-metallic components of halogen free cables				
6	Cable types					
	6.1	General	. 9			
	6.2	Requirements				
7	Silico	one rubber insulated cables (types B, C2 and D2)	10			
	7.1	Construction	10			
	7.2	Tests				
	7.3	Maximum continuous conductor temperature	11			
8	PVC	insulated cables (types E, F and G)	14			
	8.1	Construction	14			
	8.2	Tests				
	8.3	Maximum continuous conductor temperature	14			
9	Cable	Cables with a composite insulation of polyethylene and PVC (type K)				
	9.1	Construction	18			
	9.2	Tests	18			
	9.3	Maximum continuous conductor temperature	18			
10	Silico	one rubber insulated cables (type L)	20			
	10.1	Construction	20			
	10.2	Tests	20			
	10.3	Maximum continuous conductor temperature	20			
11	Test	methods	22			
	11.1	General	22			
	11.2	Classification of test according to the frequency with which they are carried out	22			
	11.3	Sampling	22			
	11.4	Pre-conditioning	22			
	11.5	Test temperature	22			
	11.6	Test voltage	22			
12	Mark	ing	22			
	12.1	Indication of origin	22			
	12.2	Indication of cable type and rated voltage	23			
		Continuity of marks				
	12.4	Additional marking	23			
		Durability				
		Legibility				
		Use of the name CENELEC				
13	Guid	e to use (informative)	23			

EN 50143:2009

**-4-**

Annex A (normative) Requirements for halogens	24
Annex B (normative) Determination of halogens- Elemental test	26
Annex C (normative) Requirements for the non-electrical tests for type ZM1 sheath	28
Annex D (normative) Requirements for the compatibility test	30
Annex E (normative) Electrical test methods	31
Annex F (normative) Non-electrical test methods	33
Annex G (normative) Requirements for the non-electrical tests for polyethylene insulation	34
Figures	
Figure 1 - Example of marking used on the outer surface of a cable	23
Figure E.1 - Cable trough	32
Figure E.2 - Test arrangement for resistance to long term breakdown	32
Tables	
Table 1 - Maximum permitted voltages against rated voltage of cable in an a.c. system	7
Table 2 - General data for cables type B, C2 and D2 to EN 50143	11
Table 3 - Tests for cables type B, C2 and D2 to EN 50143	12
Table 4 - List of applicable tests for cables type B, C2 and D2	13
Table 5 - General data for cables type E, F and G to EN 50143	15
Table 6 - Tests for cables type E, F and G to EN 50143	16
Table 7 - List of applicable tests for cables type E, F and G	17
Table 8 - Dimensions of cables type K to EN 50143	18
Table 9 - Tests for cables type K to EN 50143	19
Table 10 - General data for cables type L to EN 50143	20
Table 11 - Tests for cables type L to EN 50143	21
Table A.1 - Test method, measurement, requirements	24
Table A.2 - Sequential test programme	25
Table C.1	28
Table D.1 - Requirements	30
Table C 1	21

**-** 5 **-**

Introduction

This revision of EN 50143 is made at the request of the European Sign Federation (ESF). It supports EN 50107.

By comparison with EN 50143:1997 the number of cable types has been rationalised. One new type (type L) has been introduced, and four types (types A, C1, D1 and H) withdrawn.

The object of the European Standard remains unchanged, namely:

- to standardise cables and cords that are safe and reliable when properly used in relation to the technical requirements of the installation of which they form a part;
- to state the characteristics and manufacturing requirements directly or indirectly bearing on safety; and
- to specify methods for checking conformity with those requirements.

EN 50143:2009

EN 50143:2009 - 6 -

## 1 Scope

EN 50143 applies to single core cables of rated voltages up to and including 5/10 kV ( $U_{\circ}/U$ ) used with electric signs and high-voltage luminous-discharge-tube installations. These cables are for use in installations complying with EN 50107.

The particular types of cables are specified in Clauses 7 to 10 of this standard.

### 2 Normative references

The following referenced documents are indispensable for the application 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.

EN 50107 (series)		Signs and luminous-discharge-tube installations operating from a no-load rated output voltage exceeding 1 kV but not exceeding 10 kV
EN 50267-2-1		Common test methods for cables under fire conditions - Tests on gases evolved during combustion of materials from cables - Part 2-1: Procedures - Determination of the amount of halogen acid gas
EN 50267-2-2	1998	Common test methods for cables under fire conditions - Tests on gases evolved during combustion of materials from cables - Part 2-2: Procedures - Determination of degree of acidity of gases for materials by measuring pH and conductivity
EN 50363-1	2005	Insulating, sheathing and covering materials for low voltage energy cables - Part 1: Cross-linked elastomeric insulating compounds
EN 50363-3	2005	Insulating, sheathing and covering materials for low voltage energy cables - Part 3: PVC insulating compounds
EN 50363-4-1	2005	Insulating, sheathing and covering materials for low voltage energy cables - Part 4-1: PVC sheathing compounds
EN 50395	2005	Electrical test methods for low voltage energy cables
EN 50396	2005	Non electrical test methods for low voltage energy cables
EN 60228		Conductors of insulated cables (IEC 60228)
EN 60332-1-2		Tests on electric and optical fibre cables under fire conditions - Part 1-2: Test for vertical flame propagation for a single insulated wire or cable - Procedure for 1 kW pre-mixed flame (IEC 60332-1-2)
EN 60684-2		Flexible insulating sleeving - Part 2: Methods of test (IEC 60684-2)
EN 60811 (series)		Insulating and sheathing materials of electric and optical cables - Common test methods (IEC 60811 series)
EN 61034-2		Measurement of smoke density of cables burning under defined conditions - Part 2: Test procedure and requirements (IEC 61034-2)



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

**Product Page** 

- Dooking for additional Standards? Visit Intertek Inform Infostore
- Dearn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation