SLOVENSKI STANDARD
SIST HD 626 S1:1998/A1:1998

01-februar-1998

Nadzemni razvodni kabli za naznačeno napetost Uo/U(Um): 0,6/1 (1,2) kV

Overhead distribution cables of rated voltage Uo/U(Um): 0,6/1 (1,2) kV

Isolierte Freileitungsseile für oberirdische Verteilungsnetze mit Nennspannungen Uo/U (Um): 0,6/1 (1,2) kV

Câbles de distribution aérienne de tension assignée Uo/U(Um): 0,6/1 (1,2) kV

Ta slovenski standard je istoveten z: **HD 626 S1:1996/A1:1997**

ICS:

29.060.20	Kabli	Cables
29.240.20	Daljnovodi	Power transmission and distribution lines

SIST HD 626 S1:1998/A1:1998 **en**

HARMONIZATION DOCUMENT

DOCUMENT D'HARMONISATION

HARMONISIERUNGSDOKUMENT

HD 626 S1/A1

March 1997

ICS 29.060.20

Descriptors: Electrical installation, insulated conductor, bundle assembled cores, electric overhead line, conductor, protective sheath, polyethylene, characteristics, dimension, test, marking

English version

Overhead distribution cables of rated voltage $U_o/U(U_m)$: 0,6/1 (1,2) kV

Câbles de distribution aérienne de tension assignée $U_o/U(U_m)$: 0,6/1 (1,2) kV

Isolierte Freileitungsseile für oberirdische Verteilungsnetze mit Nennspannungen $U_o/U(U_m)$: 0,6/1 (1,2) kV

This amendment A1 modifies the Harmonization Document HD 626 S1:1996; it was approved by CENELEC on 1996-12-09. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this amendment on a national level.

Up-to-date lists and bibliographical references concerning such national implementation may be obtained on application to the Central Secretariat or to any CENELEC member.

This amendment exists in two official versions (English, French).

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Zentralsekretariat: rue de Stassart 35, B - 1050 Brüssel

Ref. Nr. HD 626 S1:1996/A1:1997 D

FOREWORD

This amendment to Harmonization Document HD 626 was prepared by Technical Committee TC20 "Electric Cables".

The amendment A1 concerns single core cables and service cables with concentric neutral conductor, which has lead to introduce Parts 9 and 10, and some modifications to section 4-F.

The documents HD 626 and HD 626/A1 now contain the following Parts, arranged according to the main constructional features of the cables covered :

HD 626 Part 1	-	General Requirements
HD 626 Part 2	-	Additional Test Methods
HD 626 Part 3	-	PE insulated self-supporting cables, (bundle assembled cores)
HD 626 Part 4	-	XLPE insulated self-supporting cables, (bundle assembled cores)
HD 626 Part 5	-	PE insulated cables with messenger, (bundle assembled cores)
HD 626 Part 6	-	XLPE insulated cables with messenger, (bundle assembled cores)
HD 626 Part 7	-	XLPE insulated and sheathed self-supporting cables, (bundle assembled cores)
HD 626 Part 8	-	XLPE insulated and PVC sheathed cables with messenger, (bundle assembled cores)
HD 626 Part 9	-	Single core cables
HD 626 Part 10	-	Service cables with concentric neutral conductor.

Part 1 of HD 626 contains the General Requirements applicable to cables for overhead distribution and service, specified in the particular sections of Part 3, 4, 5, 6, 7, 8, 9 and 10.

Each of Parts 3 - 10 inclusive contains a number of Sections, and the Technical Board has agreed (D68/047, Brussels, June 1991) that National Committees need at present only implement in their national language those Sections having national applicability. The obligation remains however to announce the full HD in public by titles and numbers, and also to withdraw any conflicting national standards.

Page numbering reflects the arrangement into Parts and Particular sections, e.g. Page 5-D-6 is Page 6 of Particular Section D of Part 5.

References to other HDs, ENs and International Standards are given in the particular parts or sections.

The text of the draft was submitted to Unique Acceptance Procedure in January 1996 and was approved by CENELEC as amendment A1 to HD 626 S1 on 1996-12-09.

By decision of the Technical Board (D81/139), this HD exists only in English and French.

The following dates were fixed :

latest date by which the existence of the amendment has to be announced at national level :	(doa)	1997-06-01
latest date by which the amendment has to be implemented at national level by publication of a harmonised national standard or by endorsement:	(dop)	1997-12-01
latest date by which the national standards conflicting with the amendment have to be withdrawn :	(dow)	1997-12-01

CONTENTS OF HD 626 AND HD 626/A1

4 K	Bundle assembled cores for overhead service (Type 4K-1) - *(Cables with aluminium conductors).*	-
4 M	Bundle assembled cores for overhead distribution and service (Type 4M-1) - *(Cables with aluminium conductors).*	-
4 N	Bundle assembled cores for overhead distribution (Type 4N-1) - *(Cables with aluminium conductors).*	-

PART 5 PE INSULATED CABLES WITH MESSENGER (bundle assembled cores)

5 D	Bundle assembled cores for overhead distribution and service (Type 5D-1) - (Cables with aluminium phase conductors and uninsulated aluminium alloy neutral conductor).	-
5 I	Bundle assembled cores for overhead service (Type 5 I-1) - (Cables with aluminium phase conductors and stranded steel messenger alloy neutral conductor).	-

PART 6 XLPE INSULATED CABLES WITH MESSENGER (bundle assembled cores)

6 B	Bundle assembled cores for overhead distribution (Type 6B-1) - (Cables with aluminium phase conductors and aluminium alloy neutral conductor).	-
6 D	Bundle assembled cores for overhead distribution and service (Type 6D-1) - (Cables with aluminium phase conductors and aluminium alloy neutral conductor).	-
6 E	Bundle assembled cores for overhead distribution (Type 6E-1) - (Cables with aluminium phase conductors and aluminium alloy neutral conductor).	-
6 J	Bundle assembled cores for overhead distribution (Type 6J-1) - (Cables with aluminium phase conductors and aluminium alloy neutral conductor).	-
6 K	Bundle assembled cores for overhead distribution (Type 6K-1) - (Cables with aluminium phase conductors and aluminium alloy neutral conductor).	-
6 N	Bundle assembled cores for overhead distribution (Type 6N-1) - (Cables with aluminium phase conductors and aluminium alloy neutral conductor).	-

PART 7 XLPE INSULATED AND SHEATHED SELF SUPPORTING CABLES (bundle assembled cores)

7 H	Bundle assembled cores for overhead distribution and service (type 7H),Self supporting XLPE insulated cables - *(Cables with tinned copper phase conductors and tinned copper neutral conductor)*	-	

PART 8 XLPE INSULATED AND PVC SHEATHED CABLES WITH MESSENGER (bundle assembled cores)

8 H	Bundle assembled cores for overhead distribution and service (type 8H), Neutral conductor messenger XLPE insulated cables - *(Cables with aluminium phase conductors and aluminium alloy neutral conductor)*	-	

PART 9 SINGLE CORE CABLES

9 F	Single cores for overhead distribution and service (Type 9F-1) - *(XLPE insulated core with aluminium conductors)*	A1	New section
9 G	Single cores for overhead distribution and service (Type 9G-1) - *(XLPE insulated core with aluminium conductors)*	A1	New section
9 I	Single cores for overhead distribution and service (Type 9I-1) - *(PE insulated core with aluminium conductors)*	A1	New section
New section	Single cores for overhead distribution (Type 9N-1 and Type 9N-2) - *(EPR insulated and PCP sheath cables with aluminium conductors Type 9N-1 or with copper conductors Type 9N-2)*	A1	New section

PART 10 SERVICE CABLES WITH CONCENTRIC NEUTRAL CONDUCTOR

10N	Single core and three cores service cables with concentric neutral conductor (Type 10N) -*(Cables with tinned copper phase conductors and tinned copper concentric neutral conductor)*	A1	New section

CONTENTS OF HD 626/A1

PART 0 (new)

PART 1 GENERAL REQUIREMENTS (complete part with new pages 3, 8, 9, 16, 17)

PART 4 XLPE INSULATED SELF SUPPORTING CABLES (bundle assembled cores)

4 F	Bundle assembled cores for overhead distribution and service (Type 4F-1) - *(Cables with aluminium conductors).* (amendment to pages 4-F and 5-F)	A1	amended pages 4 and 5

PART 9 SINGLE CORE CABLES (new)

9 F	Single cores for overhead distribution and service (Type 9F- - *(XLPE insulated core with aluminium conductors)*	A1	New section
9 G	Single cores for overhead distribution and service (Type 9G- - *(XLPE insulated core with aluminium conductors)*	A1	New section
9 I	Single cores for overhead distribution and service (Type 9I- - *(PE insulated core with aluminium conductors)*	A1	New section
9 N	Single cores for overhead distribution (Type 9N-1 and Type 9N-2) - *(EPR insulated and PCP sheath cables with aluminium conductors Type 9N-1 or with copper conductors Type 9N-2)*	A1	New section

PART 10 SERVICE CABLES WITH CONCENTRIC NEUTRAL CONDUCTOR (new)

10N	Single core and three cores service cables with concentric neutral conductor (Type 10N-1) - *(Cables with tinned copper phase conductors and tinned copper concentric neutral conductor)*	A1	New section

NOTE : During the preparation of this amendment No 1 to HD 626, HD 505 (Sections 1.1 to 4.1 inclusive) has been replaced by EN 60811 (Sections 1-1 to 4-1 inclusive).

In general the updating of these references has not been included in this amendment unless a complete section has been introduced or replaced, but users should refer to EN 60811 for the most up-to-date information. The clause numbers for the test methods in EN 60811 are identical to those in HD 505.

OVERHEAD DISTRIBUTION CABLES OF RATED VOLTAGE Uo/U(Um) : 0.6 / 1 (1.2) kV

PART 1 - GENERAL REQUIREMENTS

CONTENT

REFERENCES

EN 60811	Common test methods for insulating and sheathing materials of electric cables
HD 186	Marking by inscription for the identification of cores of electric cables having more than five cores
HD 361	System for cable designation
HD 383	Conductors of insulated cables (endorsing IEC 228 and 228A)
HD 405	Test on electric cables under fire condition
HD 605	Electric cables : Additional test methods
IEC 50(461)	International Electrotechnical Vocabulary. Chapter 461 : Electric cables
IEC 287	Calculation of the continuous current rating of cables (100 % load factor)
IEC 502	Extruded solid dielectric insulated power cables for rated voltages from 1 kV to 30 kV

In all cases reference to another HD or International Standard implies the latest edition of that document.

PART 1 - GENERAL REQUIREMENTS

1 General

1.1 Scope

HD 626 applies to cables of rated voltage U_o / U (U_m)= 0.6 / 1(1.2) kV used in overhead power distribution systems mainly for public distribution, of maximum system voltage not exceeding 1.2 kV.

This part (Part 1) specifies the general requirements applicable to these cables, unless otherwise specified in the particular sections of this HD

Test methods are specified in HD 383, HD 405, EN 60811 and in HD 605 or in Part 2 of this HD

The particular types of cables are specified in Parts 3 to 10.

1.2 Object

The objects of this Harmonisation Document are :

- to standardize cables that are safe and reliable when properly used and equipped with appropriate accessories, in relation to the technical requirements of the system of which they form a part,
- to state the characteristics and manufacturing requirements which have a direct or indirect bearing on safety,
- and to specify methods for checking conformity with those requirements.

2 Definitions

2.1 Definitions relating to insulating and sheathing materials

2.1.1 - Insulating and sheathing materials

The types of insulating and sheathing compounds covered in this HD are listed below, together with their abbreviated designations :

	Insulating and sheathing compounds	See:
1 : Insulation and insulating sheath(1)	a) *Thermoplastic* : Insulating compounds based on : -Polyethylene (PE)	Table 1
	b) *Cross linked* Insulating compound based on : -Cross linked polyethylene (XLPE)	Table 2
	c) Elastomeric Insulating compound based on : -Ethylene propylene rubber (EPR)	Table 5
2 : Sheath	a) *Cross linked*: Sheathing compound based on : -Cross linked polyethylene (XLPE)	Table 3
	b) *Thermoplastic* : Sheathing compounds based on : -Polyvinyl chloride (PVC)	Table 4
	c) Elastomeric Sheathing compound based on : -Polychloroprene, chlorosulfonated polyethylen or similar polymer (PCP, CSP)	Table 6

1 An insulating sheath is an extruded layer which simultaneously acts as an insulation and as a sheath

2.1.2 - Type of compound

The category in which a compound is classified according to its properties is determined by specific tests. The type designation is not directly related to the composition of the compound.

2.2 Definitions relating to the tests

2.2.1 - Type tests (Symbol T)

Tests required to be made before supplying a type of cable covered by this HD on a general commercial basis in order to demonstrate satisfactory performance characteristics to meet the intended application. These tests are of such a nature that, after they have been made, they need not be repeated unless changes are made in the cable material, design or type of manufacturing process which might change the performance characteristics.

2.2.2 - Sample tests (Symbol S)

Tests made on samples of completed cable, or components taken from a completed cable adequate to verify that the finished product meets the design specifications.

2.2.3 - Routine tests (Symbol R)

Tests made on all production cable lengths to demonstrate their integrity.

2.2.4 - Tests after installation

Tests intended to demonstrate the integrity of the cable and its accessories as installed .

Note - Tests classified as sample(S) or routine (R) may be required as part of type approval schemes.

2 .3 Rated voltage

The rated voltage of a cable is the reference voltage for which the cable is designed, and which serves to define the electrical tests.

The rated voltage is expressed by the combination of the following values Uo / U (Um) expressed in kV.

U_o is the rms. value between any insulated conductor and earth ;

$$U_o = 0,6\ kV$$

U is the rms. value between any two phase-conductors of a multicore cable ;

$$U = 1,0\ kV$$

U_m is the rms. value of the highest system voltage for which the equipment may be used;

$$U_m = 1,2\ kV.$$

In an alternating current system, the rated voltage of a cable shall be at least equal to the nominal voltage of the system for which it is intended.

The cables of this HD may be used in DC Systems with a maximum voltage against earth not exceeding 0,9 kV.

2.4 Other definition

Messenger (IEV 461-08-03) : a wire or a rope, the primary function of which is to support the cable in aerial installation, which may be separate from or integral with the cable it supports.

Note : in this HD, the messenger is called in some sections "neutral core" and even "messenger neutral core"

3 Marking

3.1 Indication of origin

Cables shall be provided with an indication of origin consisting of :

1. Either the manufacturer's identification thread,

2. or the continuous marking of the manufacturer's name or trademark, or (if legally protected) identification number by one of the two following alternative methods :

   a) printed tape within the cable,

   b) printing, indenting or embossing on the outer surface of at least one core.

3.1.1 - Continuity of Marks

Unless otherwise specified in the particular sections, each specified mark shall be regarded as continuous if the distance between the end of the mark and the beginning of the next identical mark does not exceed :

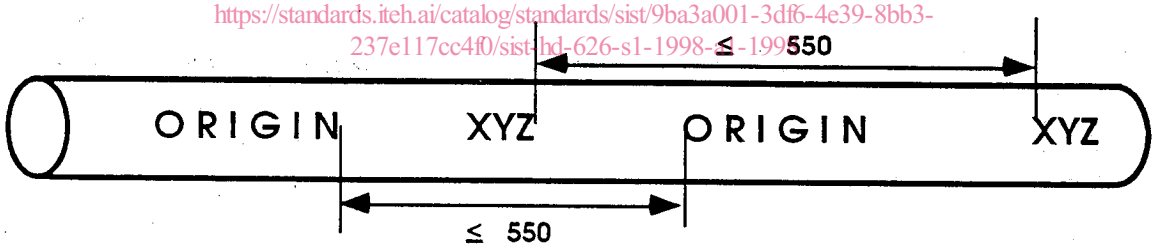
- 550 mm if the marking is on the outer surface of the cable
- 275 mm if the marking is :

  on the insulation of a sheathed cable

  or on a tape within a sheathed cable.

Note : A "Specific Mark " is any mandatory mark covered by this Part of the HD or by the particular requirements of Part 3 onwards of this HD.

The diagram below shows an example of the marking as use on the outer surface of the cable, where the word "ORIGIN" is for the mandatory information required by the sub-clause 3.1, and "XYZ" is one of any other mandatory marks .



3.2 Additional Marking

Additional marking requirements may be specified in the particular sections .

3.3 Durability

Printed markings shall be durable. Durability shall be checked by the test given in sub-clause 2.5.4 of HD 605. The printed legend shall be legible after carrying out the test.

3.4 Legibility

All markings shall be legible. Printed markings shall be in contrasting colours. The colours of the identification threads shall be easy to recognise or easily be made recognisable, if necessary, by cleaning with a suitable solvent. The printed legend shall be legible after carrying out the test.

3.5 Common marking

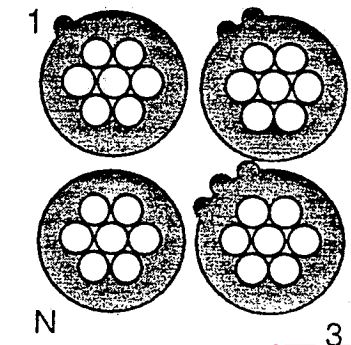
Under consideration.

3.6 Use of the name CENELEC

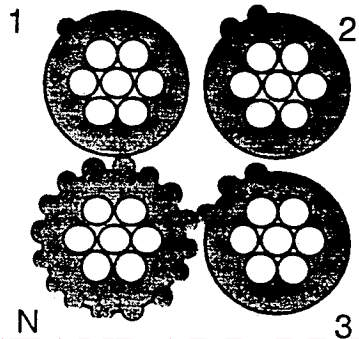
The name CENELEC, in full or abbreviated, shall not be marked directly on, or in, the cables.

4 Core identification

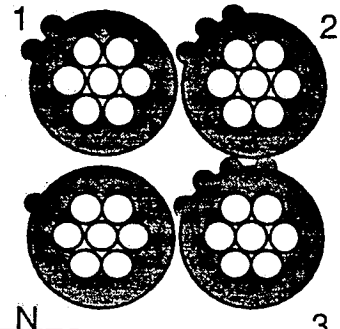
The cores shall be identified by ribs (examples of the code method is given hereafter) or by numbers (printing, indenting or embossing on the outer surface of the core), or both of them . For a two cores cable, this core identification is valid too .



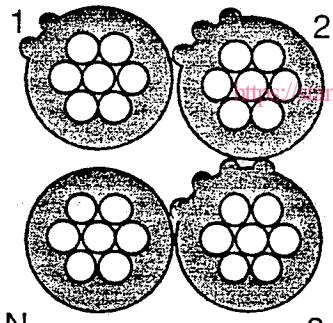
Method A



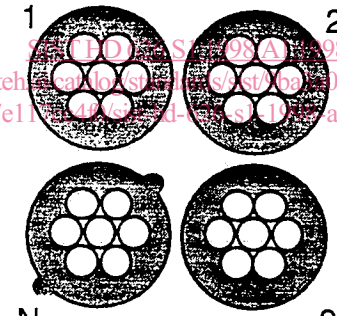
Method B



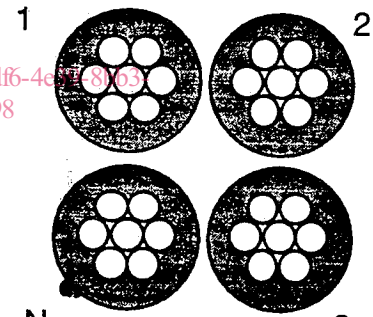
Method C



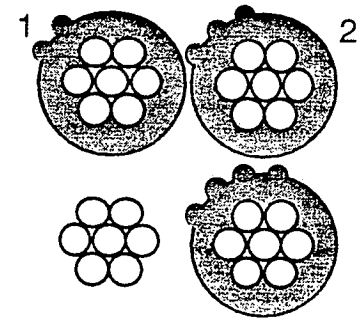
Method D



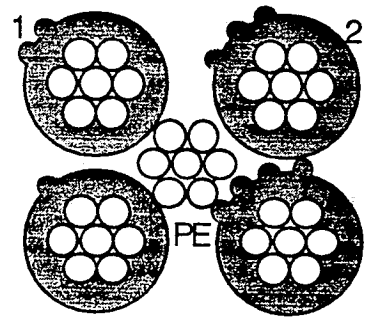
Method E



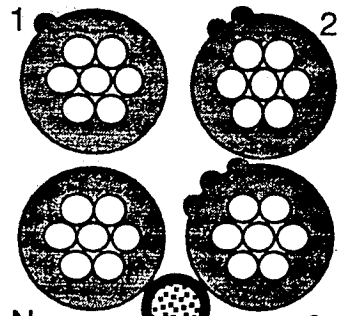
Method F



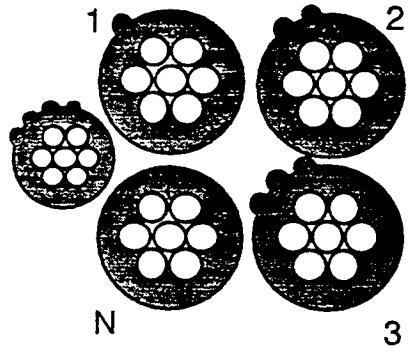
Method G



Method H



Method I



Method J

The colour or numbering or coding schemes relevant to the various types of cables are given in the particular sections of this HD.

When identification is made by numbers, they shall be printed in a colour which contrasts with the core colour. Marking shall comply with HD 186 unless otherwise specified.

The colours or numbers shall be clearly identifiable and durable. Durability shall be checked by the test specified in sub-clause 2.5.4 of HD 605.

Compliance with these requirements shall be verified by visual examination.

5 General requirements for the construction of cables

Compliance with the requirements given in sub-clauses 5.1 to 5.4 and in the particular sections of this HD shall be checked by inspection and by measurements according to the test methods in documents listed in the Scope of the HD 626-1 Sub-clause 1.1. or in particular sections.

5.1 Conductors

5.1.1 - Material

Conductors shall be either of plain or metal-coated hard-drawn copper or of aluminium or aluminium alloy in accordance with HD 383 or with particular requirements in particular sections of this HD.

Conductors shall be circular and stranded or shall comply with particular requirements in particular sections of this HD.

5.1.2 - Electrical resistance

The resistance of each conductor at 20°C shall be in accordance with the requirements in HD 383 for the given class of conductor or with particular requirements in particular sections of this HD.

5.1.3 - Separator tape

A separator tape may be placed between the conductor and the insulation.

It shall be easily removable from the conductor.