

Overhead electrical lines exceeding AC 1 kV - Part 2-23:
National Normative Aspects (NNA) for SLOVAKIA (based
on EN 50341-1:2012)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 50341-2-23:2016 sisaldab Euroopa standardi EN 50341-2-23:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 50341-2-23:2016 consists of the English text of the European standard EN 50341-2-23:2016.
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English Version

**Overhead electrical lines exceeding AC 1 kV - Part 2-23:
National Normative Aspects (NNA) for SLOVAKIA (based on EN
50341-1:2012)**

Lignes électriques aériennes dépassant 1 kV en courant
alternatif - Partie 2-23: Aspects normatifs nationaux pour la
SLOVAQUIE (basé sur l'EN 50341-1:2012)

This European Standard was approved by CENELEC on 2016-09-20. 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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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

1. The Slovak National Committee (NC) is identified by the following address:
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2. The Slovak National Committee has prepared this Part 2-23 (EN 50341-2-23) listing the Slovak National Normative Aspects (NNA) under its sole responsibility and duly passed this document through the CENELEC and CLC/TC11 procedures.

NOTE The Slovak National Committee also takes sole responsibility for the technically correct co-ordination of this EN 50341-2-23 with EN 50341-1. It has performed the necessary checks in the frame of quality assurance/control. However, it is noted that this quality assurance/control has been made in the framework of the general responsibility of The Slovak National Committee under the national laws/regulations.

3. This EN 50341-2-23 is normative in Slovakia and informative for other countries.
4. This EN 50341-2-23 has to be read in conjunction with EN 50341-1, hereinafter referred as Part 1. All clause numbers used in Part 2-23 correspond to those of Part 1. Specific subclauses which are prefixed SK are to be read as amendments to the relevant text in Part 1. Any necessary clarification regarding the application of Part 2-23 in conjunction with Part 1 shall be referred to the Slovak Office of Standards, Metrology and Testing that will, in co-operation with CLC/TC11, clarify the requirements. When no reference is made in Part 2-23 to a specific subclause, then Part 1 applies.
5. In the case of "boxed values" defined in Part 1, amended values (if any) which are defined in Part 2-23 shall be taken into account in Slovakia.

However, any "boxed values" whether in Part 1 or Part 2-23, shall not be amended in direction of greater risk in the Project Specification.
6. The national Slovak standards/regulations, regarding overhead lines exceeding 1 kV AC, are listed in 2.1/SK.2 and 2.1/SK.3.

NOTE All national standards referred to in this Part 2-23 will be replaced by the relevant European Standards as soon as they become available and are declared by the Slovak Office of Standards, Metrology and Testing to be applicable and thus reported to the secretary of CLC/TC11.

1 Scope

1.1 General

(ncpt) SK.1 New overhead line

As a new overhead line is considered a brand new electric overhead line with nominal voltage exceeding 1 kV AC, between the points A and B.

The new branch line of the existing overhead line shall be considered as a new overhead line except for a junction support for which the specific requirements shall be defined in the Project Specification.

The extent of application of this standard in respect of reconstruction, relaying and extension of existing overhead lines shall be determined in the Project Specification. Simultaneously, the Project Specification shall determine, which of the previous national standards shall be used and to what extent they shall be used for the project in question.

1.2 Field of application

(ncpt) SK.1 Field of application

The requirements of this standard shall be adopted, where applicable (e.g. requirements on loads, external clearances, etc.), for telecommunication cables as well.

In case of overhead line under the design stage, parties concerned shall agree the extent of the application of this standard.

Overhead line under construction may be completed according to standards valid during the design stage of the line. The parties concerned shall agree any possible application of certain clauses of this standard.

(ncpt) SK.2 Installation of telecommunication equipment on supports

Provisions of this standard also apply to the telecommunication equipment and devices (aerials, dish antennas, etc.) which are installed on individual supports of overhead power lines, especially in terms of wind and ice loads on such installed equipment. Design and installation has to respect requirements of the utility operating the line in question. The design of such telecommunication equipment has to incorporate such technical solutions and such precautions, which shall allow safe access and maintenance of both a power line and telecommunication equipment, and which shall provide protection of persons performing repairs or maintenance of the power line and/or telecommunication equipment against electric shock and protection of telecommunication equipment and attached installations against the influence of the power line (short-circuits, switching and lightning overvoltages etc.).

2 Normative references, definitions and symbols

2.1 Normative references

(ncpt) SK.1 General

National laws, Government regulations and other binding regulations are included in following 2.1/SK.2. International and national standards quoted in EN 50341-2-23 and not included in 2.1 EN 50341-1 are included in 2.1/SK.3.

The set of standards included in 2.1 EN 50341-1 under a common title of Eurocodes is valid in Slovakia including the Slovak National Application documents related to relevant standards, unless EN 50341-1 and/or these Slovak National Normative Aspects (EN 50341-2-23) specify otherwise.

NOTE Some EN, IEC, ISO and CISPR publications implemented as Slovak National Standards (STN) include informative notes and informative annexes useful in Slovakia.

(A-dev) **SK.2 National laws, government decrees and other binding rules of law**

Reference	Title
22/2001 Z.z.	Vyhláška, ktorou sa ustanovujú podrobnosti o zaradení vodných ciest a ich jednotlivých úsekov do príslušných tried podľa klasifikácie európskych vodných ciest <i>Regulation, which establishes the details on classification of waterways and their individual sections into relevant classes according to European waterway classification</i>
534/2007 Z.z.	Vyhláška o podrobnostiach o požiadavkách na zdroje elektromagnetického žiarenia a na limity expozície obyvateľov elektromagnetickému žiareniu v životnom prostredí <i>Regulation on the details on requirements on electromagnetic radiation sources and on limits of population exposure to electromagnetic radiation in the environment</i>
251/2012 Z.z.	Zákon o energetike a o zmene a doplnení niektorých zákonov (energetický zákon) <i>Act on energetics and on amendment to certain laws (Energy Act)</i>
FMPE 994/11:1981 FMD 621/1981-SM	Dohoda o postupu při interferenčním ovlivnění zabezpečovacího zařízení celostátních drah zařízeními elektrizační soustavy <i>The agreement on the common practice on interference influence of state railway security equipment by electricity system devices</i>

(ncpt) **SK.3 Standards**

Reference	Title
STN EN 1991-1-4	Eurokód 1. Zaťaženia konštrukcií. Časť 1-4: Všeobecné zaťaženia. Zaťaženie vetrom (Národná príloha NA pre SR, Mapa vetrových oblastí) <i>Eurocode 1: Action on structures. Part 1-4: General actions – Wind Actions (National Annex NA for Slovakia, Wind zone map)</i>
STN 33 2040	Elektrotechnické predpisy. Ochrana pred účinkami elektromagnetického poľa 50 Hz v pásme vplyvu zariadenia elektrizačnej sústavy <i>Electric engineering regulations. Protection against effects of the electromagnetic fields 50 Hz in the zone of influence of electric power system device</i>
STN 33 2160	Elektrotechnické predpisy. Predpisy na ochranu oznamovacích vedení a zariadení pred nebezpečnými vplyvmi trojfázových vedení VN, VVN a ZVN <i>Electric engineering regulations. Rules for the protection of telecommunication lines and equipment against dangerous influences of three-phase high voltage, very high voltage and ultra high voltage lines</i>

Reference	Title
EN 50443	Účinky elektromagnetickej interferencie spôsobenej vysokonapäťovými elektrickými trakčnými sieťami striedavého prúdu a/alebo vysokonapäťovými napájacími sieťami striedavého prúdu na potrubia <i>Effects of electromagnetic interference on pipelines caused by high voltage a.c. electric traction systems and/or high voltage a.c. power supply systems</i>
STN 73 6133	Stavba ciest. Teleso pozemných komunikácií <i>Road Building – Road embankments and subgrades</i>
EN 13501-1+A1	Klasifikácia požiarnych charakteristík stavebných výrobkov a prvkov stavieb. Časť 1: Klasifikácia využívajúca údaje zo skúšok reakcie na oheň <i>Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests.</i>
EN 13501-5+A1	Klasifikácia požiarnych charakteristík stavebných výrobkov a prvkov stavieb. Časť 5: Klasifikácia využívajúca údaje zo skúšok striech namáhaných vonkajším ohňom <i>Fire classification of construction products and building elements – Part 5: Classification using data from external fire exposure to roofs tests</i>
EN 50522	Uzemňovanie silnoprúdových inštalácií na striedavé napätia prevyšujúce 1 kV <i>Earthing of power installations exceeding 1 kV AC.</i>
EN 62305-3	Ochrana pred bleskom. Časť 3: Hmotné škody na stavbách a ohrozenie života <i>Protection against lightning – Part 3: Physical damage to structures and life hazard</i>
EN ISO 14688-1	Geotechnický prieskum a skúšky. Pomenovanie a klasifikácia zemín. Časť 1: Pomenovanie a opis <i>Geotechnical investigation and testing - Identification and classification of soil - Part 1: Identification and description</i>
EN ISO 14688-2	Geotechnický prieskum a skúšky. Pomenovanie a klasifikácia zemín. Časť 2: Princípy klasifikácie <i>Geotechnical investigation and testing - Identification and classification of soil – Part 2: Principles for a classification</i>
EN ISO 14689-1	Geotechnický prieskum a skúšky. Pomenovanie a klasifikácia skalných hornín. Časť 1: Pomenovanie a opis <i>Geotechnical investigation and testing - Identification and classification of rock – Part 1: Identification and description</i>
EN 206	Betón. Špecifikácia, vlastnosti, výroba a zhoda <i>Concrete. Specification, performance, production and conformity</i>
STN 73 3050	Zemné práce. Všeobecné ustanovenia <i>Earth works. General requirements</i>

(ncpt) **SK.4 Other publications**

Reference	Title
STN 73 1001: 1988 (withdrawn on 1.4.2010)	Zakladanie stavieb. Základová pôda pod plošnými základmi <i>Foundation of structures. Subsoil under shallow foundations</i>
CIGRE TB 207:2002	CIGRÉ technical brochure No. 207 "Thermal behaviour of overhead conductors"
CIGRE TB 273:2005	CIGRÉ technical brochure No. 273 "Overhead conductor safe design tension with respect to Aeolian vibrations"
CISPR TR 18-2	Radio interference characteristics of overhead power lines and high-voltage equipment. Part 2 : Methods of measurement and procedure for determining limits

2.2 Definitions(ncpt) **SK.1 span**

part of a line between attachment points of a *conductor* on two consecutive *supports* (IEV 466-03-01)

NOTE This definition is included for the reason that the English word "span" corresponds with the Slovak conversion used in STN IEC 50 (466) which means "a span length".

(ncpt) **SK.2 overhead telecommunication line and equipment**

wire or cable line and telecommunication equipment leading above ground and outside buildings and transmitting information via electromagnetic waves

(ncpt) **SK.3 aluminium based conductor**

bare *conductor* made of round or shaped wires being concentric lay stranded with alternating directions of stranding, with grease or not, produced of materials or various materials according to one of following alternatives

- aluminium wires
- aluminium alloy wires
- combination of aluminium wires and aluminium alloy wires
- combination of aluminium wires and steel zinc coated wires
- combination of aluminium wires and aluminium clad steel wires
- combination of aluminium alloy wires and steel zinc coated wires
- combination of aluminium alloy wires and aluminium clad steel wires

(ncpt) **SK.4 steel based conductor**

bare *conductor* made of round or shaped wires being concentric lay stranded with alternating directions of stranding, with grease or not, produced of materials or various materials according to one of following alternatives

- steel zinc coated wires
- aluminium clad steel wires

2.3 Symbols(ncpt) **SK.1 Symbols**

Symbols which are contained in EN 50341-2-23 and are not contained in EN 50341-1, or which are contained in EN 50341-2-23 also with a different meaning than in 2.3 EN 50341-1, are included below.

Symbol	Signification	References
b_{emp}	Minimum clearance between conductors within the span according to empirical formula	5.8/SK.3
c_{emp}	Constant in empirical formula for the minimum clearance between conductors within the span	5.8/SK.3