SLOVENSKI STANDARD
SIST EN 50341-2-2:2019

01-december-2019

Nadzemni električni vodi za izmenične napetosti nad 1 kV - 2-2. del: Nacionalna normativna določila (NNA) za Belgijo (na podlagi EN 50341-1:2012)

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

Ta slovenski standard je istoveten z: EN 50341-2-2:2019

ICS:

29.240.20	Daljnovodi	Power transmission and distribution lines

SIST EN 50341-2-2:2019 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50341-2-2

May 2019

ICS 29.240.20

English Version

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

This European Standard was approved by CENELEC on 2019-04-10.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

1 The Belgian National Committee (NC) is identified by the following address:

Belgian Electrotechnical Committee (BEC)

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Belgium

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2 The Belgian NC has prepared this Part 2-2 (EN 50341-2-2) listing the Belgian National Normative Aspects (NNA), under its sole responsibility, and duly passed it through the CENELEC and CLC/TC11 procedures.

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

3 This NNA is normative in Belgium and informative for other countries.

4 This NNA has to be read in conjunction with Part 1 (EN 50341-1). All clause numbers used in this NNA correspond to those of Part 1. Specific subclauses, which are prefixed “BE”, are to be read as amendments to the relevant text in Part 1. Any necessary clarification regarding the application of this NNA in conjunction with Part 1 shall be referred to the Belgian NC who will, in co-operation with CLC/TC11, clarify the requirements.

Where no reference is made in this NNA to a specific subclause, then Part 1 applies.

5 In case of “boxed values” defined in Part 1, amended values (if any), which are defined in this NNA shall be taken into account in Belgium.

However, any boxed value, whether in Part 1 or this NNA, shall not be amended in the direction of greater risk in a Project Specification.

6 The national Belgian standards/regulations related to overhead electrical lines exceeding 1 kV (AC) are listed in subclauses 2.1/BE.1 and BE.2.

Only significant extracts and summaries of the Belgian national regulations are presented in the A-deviations. They must be read in conjunction with the Belgian national regulations identified in 2.1/BE.1 which is in any case the relevant document.

NOTE All national standards referred to in this NNA will be replaced by the relevant European Standards as soon as they become available and are declared by the Belgian NC to be applicable and thus reported to the secretary of CLC/TC11.

7 Supplementary requirements in this NNA in addition to the part 1 are indicated by preceding the corresponding paragraphs by (snc) or (ncpt).

Paragraphs preceded by (A-dev) are required by national law: i.e. the General Regulations of the Electrical Installations (GREI).

1 Scope

1.1 General

BE.1 Scope of Part 1 and Part 2-2

(ncpt) Part 1 and the present Part 2-2 are only applicable to completely new or completely replaced overhead lines between two points, A and B, as well as to new supports on new foundations with nominal voltages above AC 50 kV.

(A-dev) Overhead lines or supports with nominal voltages exceeding AC 1 kV up to and including AC 50 kV are treated as a high voltage of the first category in the General Regulations of the Electrical Installations (GREI) and follow completely the GREI for their dimensioning.

1.2 Field of application

(ncpt) **BE.1 Application to telecommunication equipment**

Part 1 and this NNA apply to telecommunication equipment mounted on the new supports (e.g. dishes, antennas), particularly with respect to wind assumptions.

2 Normative references, definitions and symbols

2.1 Normative references

(A-dev) **BE.1 National regulations**

The General Regulations of the Electrical Installations (GREI) are given by the Belgian Royal Decree of March 1981 (latest issue) which has been published in the Belgian Statute Book of 29 April 1981.

The installations for transmission and distribution of electrical energy are covered in Book 3 after the restructuring of the GREI in 2019. The articles as mentioned in this NNA must therefore be translated to corresponding sections to find the relevant extracts.

(ncpt) **BE.2 National standards**

Reference	Title
NBN B21-602	*Poteaux préfabriqués en béton pour supports de lignes aériennes – Spécifications d'application en complément à la NBN EN 12843: Produits préfabriqués en béton – Mâts et poteaux*
NBN C34-100	*Solid and stranded conductors for overhead lines for power transmission*
NBN EN 1090-2	*Execution of steel structures and aluminium structures – Part 2: Technical requirements for steel structures*
	Hot rolled products of structural steels
NBN EN 10025-1	*Part 1: General technical delivery conditions*
NBN EN 10025-2	*Part 2: Technical delivery conditions for non-alloy structural steels*
NBN EN 10025-3	*Part 3: Technical delivery conditions for normalized rolled weldable fine grain structural steels*
NBN EN 10027-1	*Designation systems for steels – Part 1: Steel names*
	Structural steel equal and unequal leg angles
NBN EN 10056-1	*Part 1: Dimensions*
NBN EN 10056-2	*Part 2: Tolerances on shape and dimensions*

NBN EN 1993-1-6 *Eurocode 3 – Design of steel structures – Part 1-6: Strength and stability of shell structures*

(ncpt) **BE.3 Other publications**

[1] 1999/519/EC: "*Council Recommendation of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz)*", Official Journal of the European Communities L199, 30/07/1999.

[2] BBRI: "*Guidelines for the application of the Eurocode 7 in Belgium according to NBN EN 1997-1 ANB. Part 1: geotechnical design in the ultimate limit state (ULS) of axially loaded piles based on cone penetration tests (CPT)*", Belgian Building Research Institute, Report n° 19, 2016.

2.3 Symbols

Symbol	Signification	Reference
c_{prob}	Probability factor	3.2.2/BE.3
D_V	Proximity zone clearance	5.9.1/BE.1
F_{mob}	Mobile load	4.9.1/BE.2
k_I	Turbulence factor	4.3.4/BE.1
x	Upstream distance	4.3.2/BE.3

3 Basis of design

3.2 Requirements of overhead lines

3.2.2 Reliability requirements

(ncpt) **BE.1 Reliability of overhead lines**

In Belgium overhead lines shall be designed such that they meet the requirements of the reliability level 2 unless otherwise defined in the Project Specification.

There is an exception for 70 kV concrete poles where the reliability level 1 applies.

The Project Specification shall specify whether the reliability level 3 has to be applied in case of overhead lines with very high consequences of failure (e.g. lines near Seveso companies, lines connecting a critical power plant).

(ncpt) **BE.2 Reliability of temporary lines/towers**

The minimum return periods of the climatic actions to be taken into account for the design of temporary lines/towers installed for a period of less than one year are given in Table 3/BE.1.

Table 3/BE.1 – Return period for temporary lines/towers

Duration	**Return period** (years)
≤ 3 days	2
≤ 3 months (but > 3 days)	5
≤ 1 year (but > 3 months)	10

(ncpt) **BE.3 Load cases for temporary lines/towers**

The standard load cases based on the reliability level 3 (see also Table 4/BE.4) apply.

Only in the normal and extreme wind load case, the basic wind velocity shall be multiplied by the probability factor c_{prob} in function of the reduced return period according to Table 3/BE.2.

Table 3/BE.2 – Probability factor for temporary lines/towers

Return period (years)	c_{prob}	$(c_{prob})^2$
2	0,78	0,60
5	0,85	0,72
10	0,90	0,81

When the temporary line/tower is installed outside the months November, December, January, February and March, no wind & ice and winter loading have to be considered.

(ncpt) **BE.4 Application of seasonal coefficient for temporary lines/towers**

For temporary lines/towers installed less than 3 months, the wind loads (except for the reduced wind) may be reduced by the seasonal coefficient c_{season} according to Table 3/BE.3. The highest value of c_{season} of the considered months shall be used.

Table 3/BE.3 – Seasonal coefficient for temporary lines/towers

Month	**01-02**	**03**	**04**	**05-06-07-08**	**09**	**10**	**11**	**12**
c_{season}	0,96	0,92	0,88	0,83	0,88	0,92	1,0	0,96
$(c_{season})^2$	0,92	0,85	0,77	0,69	0,77	0,85	1,0	0,92

4 Actions on lines

4.1 Introduction

(ncpt) **BE.1 Climatic data**

The stipulated wind loads are based on NBN EN 1991-1-4 ANB. The stipulations for ice loads are based on long-term operational experience.

4.3 Wind loads

4.3.1 Field of application and basic wind velocity

(snc) **BE.1 Basic wind velocity**

The basic wind velocity may be set to $V_{b,0}$ = 26 m/s throughout Belgium.

When a more detailed value is needed, the basic wind velocity can be obtained from Figure 4/BE.1 or from Table 4.2 ANB in NBN EN 1991-1-4 ANB.

Figure 4/BE.1 – Basic wind velocities $V_{b,0}$ according to NBN EN 1991-1-4 ANB

4.3.2 Mean wind velocity

(ncpt) **BE.1 Wind directional factor**

The wind directional factor c_{dir} is equal to 1.

(ncpt) **BE.2 Reference height above ground**

The reference height above ground is minimum 10 m and maximum 200 m.

(ncpt) **BE.3 Terrain category**

The upstream distance x for the choice of the terrain category at the transition between roughness categories is function of the reference height h and is calculated using expression (x and h in meters):

$$x = 23\ (h)^{1,2} \text{ with } x \geq 300$$

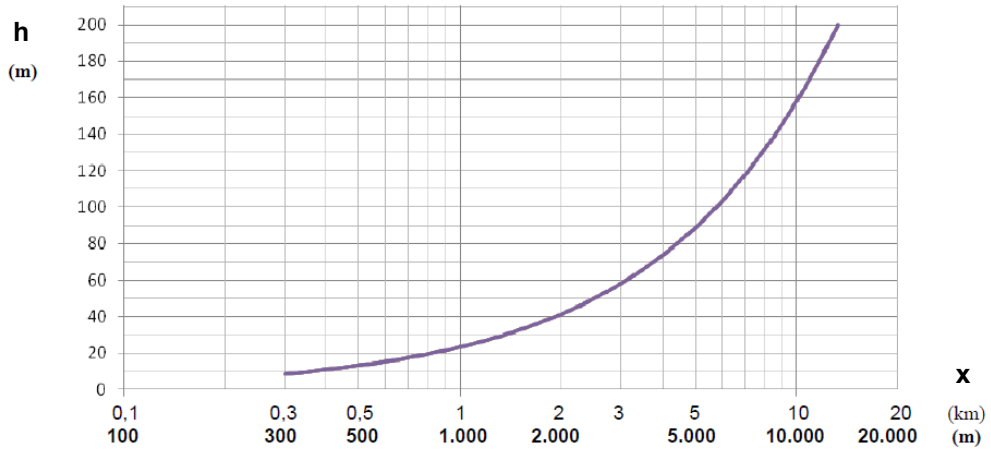

Figure 4/BE.2 – Distance x to observe the terrain roughness