ICS 29.240.20 SLOVENSKÁ TECHNICKÁ NORMA Apríl 2025

STN	**Vonkajšie elektrické vedenia so striedavým napätím nad 1 kV Časť 2-24: Národné normatívne hľadiská (NNA) pre RUMUNSKO (založené na EN 50341-1: 2012)**	**STN EN 50341-2-24** 33 3300

Overhead electrical lines exceeding AC 1 kV - Part 2-24: National Normative Aspects (NNA) for Romania (based on EN 50341-1:2012)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 03/25

Obsahuje: EN 50341-2-24:2024

Oznámením tejto normy sa ruší
STN EN 50341-2-24 (33 3300) z marca 2020

obsahuje farebné strany

140266

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50341-2-24

December 2024

ICS 29.240.20

Supersedes EN 50341-2-24:2019

English Version

Overhead electrical lines exceeding AC 1 kV - Part 2-24: National Normative Aspects (NNA) for Romania (based on EN 50341-1:2012)

This European Standard was approved by CENELEC on 2024-11-06. 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.

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

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

Ref. No. EN 50341-2-24:2024 E

Contents

Page

European foreword

The following statements 1 to 6 are required from CLC/TC 11 for all NNAs; the statement 7 has been added by the Romanian National Committee (NC).

1. The Romanian National Committee is identified by the following address:

   Romanian Standards Association (Asociația de Standardizare din România - ASRO)
   Standardization Department
   Mihai Eminescu Street No 238, Sector 2, Cod 020085, Bucharest, Romania
   Phone: +40 21 316 32 96
   Fax: +40 21 316 08 70
   email: asro@asro.ro
   www.asro.ro

   Name of the relevant technical body: Romanian Technical Committee no 165 "*Overhead power lines*" (ASRO/CT 165 - *Linii electrice aeriene*)

2. The Romanian NC and its technical body (ASRO/CT 165 - *Linii electrice aeriene*) prepared this Part 2-24 of EN 50341, listing the Romanian National Normative Aspects (NNA) under its sole responsibility, and duly passed it through the CENELEC and CLC/TC 11 procedures.

   NOTE The Romanian NC also takes sole responsibility for the technically correct co-ordination of this EN 50341-2-24:2024 with EN 50341-1:2012. It performed the necessary checks in the frame of quality assurance/control. However, it is noted that this quality control was made in the framework of the general responsibility of a standards committee under the national laws/regulations.

3. This EN 50431-2-24, hereafter referred to as Part 2-24, is normative in Romania and informative in other countries.

4. This Part 2-24 shall be read in conjunction with EN 50341-1, hereafter referred to as Part 1. All clause numbers used in this NNA correspond to those of Part 1. Specific subclauses, which are prefixed "RO", shall 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 Romanian NC who will, in co-operation with CLC/TC 11, 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 Part 2-24 shall be taken into account in Romania.

   However, any "boxed value", whether in Part 1 or in this Part-2-24, shall not be amended in the direction of greater risk in a Project Specification.

6. The National Romanian standards/regulations related to overhead electrical lines exceeding 1 kV AC are listed in 2.1 of this Part 2-24.

   NOTE All national standards referred to in this Part 2-24 will be replaced by the relevant European Standards as soon as they become available and are declared by the Romanian NC to be applicable and thus reported to the secretary of CLC/TC 11.

7. The subclauses 2.1/RO.1, 2.1/RO.2, 2.1/RO.2.1.1 and 2.1/RO.2.1.2 are "A-dev".
   The subclauses 4.3.1/RO.1, 4.5.1/RO.1 and 4.6.1/RO.1 are "snc".
   All other subclauses RO.X are "ncpt".

This second edition replaces the first edition published in 2019. This new edition reviews and complements the previous one.

0 Introduction

0.7 Language

(ncpt) **RO.1 Language**

This standard EN 50341-2-24 (Part 2-24) is published in English and Romanian languages.

1 Scope

1.1 General

1.1 **RO.1 General**

(ncpt) This standard EN 50341-2-24 (Part 2-24) gives the requirements for design and construction of overhead electrical lines with nominal voltages exceeding A.C. 1 kV operating at 50 Hz frequency.

This Part 2-24 applies to new overhead electrical lines, as well as in the following cases:

- the extension of existing overhead electrical lines;
- the deviation of some portions of the existing overhead electrical lines in accordance with the provisions of technical regulations in force issued by the National Energy Regulatory Authority (see article 39 of ANRE Order 25/2016);
- new supports to be used for the replacement and/or relocation of existing supports.

This Part 2-24 is not applicable for the existing overhead electrical lines unless specifically required by Project Specification. The overhead electrical lines, that are in different stages of design or construction, can be completed in conformity with the standards in force at the beginning of project.

For the application of this standard for specific requirements relating to modernization, increasing safety and transport capacity of existing overhead electrical lines, reference shall be specified in the Project Specification. At the same time, the correlation between relevant regulations and associated standards shall be established in the Project Specifications.

The extension of existing electrical lines is considered as new overhead electrical lines, except the junction points that shall be detailed in the Project Specifications.

1.2 Field of application

1.2 **RO.1 Overhead electrical lines having uninsulated, pre-insulated and insulated conductors**

(ncpt) This Part 2-24 is applicable for the design and construction of overhead electrical lines with uninsulated, pre-insulated and insulated conductors where the internal and external clearances can be smaller than those specified in Part 1 (SR EN 50341-1:2013).

2 Normative references, definitions and symbols

2.1 Normative references

2.1 **RO.1 Application of normative references in Part 1**

(A-dev) The normative references in Part 1 (SR EN 50341-1:2013) are applicable, unless otherwise specified in this Part 2-24. Moreover, in Romania, the Eurocodes series adopted as national standards shall be applied pursuant the technical regulations on construction field.

2.1 **RO.2 References to national laws, technical regulations and standards**

(A-dev) The following national acts and normative documents contain provisions for design, construction and mounting of the overhead electrical lines. These normative acts (laws, governmental decisions, decrees) and normative documents (national technical regulations and standards) are mentioned in the text so that their content, in whole or in part, constitutes requirements of this standard (Part 2-24).

On the date of publication of this standard, the editions of the documents cited as normative references are in force. For dated references, only the cited edition applies. For undated references, the latest edition of the reference document (including amendments) applies.
Taking into consideration that any normative document can be subject to revision, the parties involved in different agreements based on this standard shall investigate the possibility of using the latest edition of referenced documents.

2.1 **RO. 2.1.1 National normative acts and technical regulations**

2.1 **RO.2.1.1 National normative acts**

(A-dev) The following normative acts are applicable:

Law on electricity and natural gas no. 123/2012 (with subsequent completions and modifications);
Legea energiei electrice şi a gazelor naturale nr. 123/2012 (cu modificările şi completările ulterioare)

Water Law no. 107/1996 (with subsequent completions and modifications);
Legea apelor nr 107/1996 (cu modificările şi completările ulterioare)

Law on the environmental protection no. 137/1995 (with subsequent completions and modifications);
Legea protecției mediului nr. 137/1995 (cu modificările şi completările ulterioare)

Law no. 292/2018 on the environmental impact assessment of public and private projects (with subsequent completions and modifications);
Legea nr. 292/2018 privind evaluarea impactului anumitor proiecte publice şi private asupra mediului (cu modificările şi completările ulterioare)

Low no. 121/2019 on the assessment and management of ambient noise (with subsequent completions and modifications);
Legea nr. 121/2019 privind evaluarea şi gestionarea zgomotului ambiant (cu modificările şi completările ulterioare)

Law no. 440 of June 27, 2002 for the approval of Government Ordinance no. 95/1999 regarding the quality of assembly works for machinery, equipment and industrial technological installations;
Legea nr. 440 din 27 iunie 2002 pentru aprobarea Ordonanței Guvernului nr. 95/1999 privind calitatea lucrărilor de montaj pentru utilaje, echipamente și instalații tehnologice industriale

Decree no. 237/1978 for the establishment of normative documents concerning systematization, location, construction, and repairing work of the overhead electrical lines passing through forests and over agricultural lands;
Decretul nr. 237/1978 pentru stabilirea normativelor privind sistematizarea, amplasarea, construirea și repararea liniilor electrice care trec prin păduri și prin terenuri agricole

Government Ordinance no. 43/1997 regarding the legal regime of roads (with subsequent completions and modifications);
Ordonanţa Guvernului nr. 43/1997 privind regimul drumurilor (cu modificările şi completările ulterioare)

Government Emergency Ordinance no. 195/2005 on the environmental protection (with subsequent completions and modifications);
Ordonanța de urgență a Guvernului nr. 195/2005 privind protecția mediului (cu modificările şi completările ulterioare)

2.1 **RO.2.1.2 National technical regulations**

(A-dev) The following technical regulations are applicable.

National Energy Regulatory Authority (ANRE) – Order no. 25/2016 on the approval of methodology for the issuance of placement permit by the network operators (with subsequent completions and modifications);
Autoritatea Naţională de Reglementare în domeniul Energiei (ANRE) – Ordinul nr. 25/2016 privind aprobarea Metodologiei pentru emiterea avizelor de amplasament de către operatorii de reţea (cu modificările şi completările ulterioare)

National Energy Regulatory Authority (ANRE) – Order no. 239/2019 on the approval of the Technical Norm concerning the delimitation of the protection and safety areas related to the energy capacities (with subsequent completions and modifications);
Autoritatea Naţională de Reglementare în domeniul Energiei (ANRE) – Ordinul nr. 239/2019 pentru aprobarea Normei tehnice privind delimitarea zonelor de protecţie şi de siguranţă aferente capacităţilor energetice (cu modificările şi completările ulterioare)

Ministry of the Environment, Waters and Forests – Order no. 269/2020 on the approval of the general guide applicable to the stages of the environmental impact assessment procedure, the guide for environmental impact assessment in a cross-border context and other specific guidelines for different fields and categories of projects;
Ministerul Mediului, Apelor şi Pădurilor – Ordinul nr. 269/2020 privind aprobarea ghidului general aplicabil etapelor procedurii de evaluare a impactului asupra mediului, a ghidului pentru evaluarea impactului asupra mediului în context transfrontieră şi a altor ghiduri specifice pentru diferite domenii şi categorii de proiecte

Ministry of Development, Public Works and Administration – Order no. 30/2023 on the approval of the technical Regulations for the production of concrete and the execution of concrete works, reinforced concrete and prestressed concrete – Part 1: Concrete production, reference number NE 012/1-2022;
Ministerul Dezvoltării, Lucrărilor Publice şi Administraţiei – Ordinul nr. 30/2023 pentru aprobarea reglementării tehnice Normativ pentru producerea şi executarea lucrărilor din beton, beton armat şi beton precomprimat Partea 1: Producerea betonului, indicativ NE 012/1-2022

Ministry of Public Health – Order no. 1193/2006 regarding the limitation of the exposure of the general population to electromagnetic fields from 0 Hz to 300 GHz;
Ministerul Sănătăţii Publice – Ordinul nr. 1193/2006 pentru aprobarea Normelor privind limitarea expunerii populaţiei generale la câmpuri electromagnetice de la 0 Hz la 300 GHz

Ministry of Transport, Construction and Tourism – Order no. 2231/2005 for the amendment and completion of the annex to the Order of the Minister of Transport, Construction and Tourism no. 176/2005 on the approval of the technical regulation Normative for the design, execution, verification and operation of electrical installations in hazardous areas associated with explosive atmospheres, reference number NP 099-04;
Ministerul Transporturilor, Construcţiilor şi Turismului – Ordinul nr. 2231/2005 pentru modificarea și completarea anexei la Ordinul ministrului transporturilor, construcțiilor și turismului nr. 176/2005 privind aprobarea reglementării tehnice Normativ pentru proiectarea, executarea, verificarea și exploatarea instalațiilor electrice în zone cu pericol de explozie, indicativ NP 099-04.

2.1 RO.2.1.3 Romanian standards

ncpt) The following normative documents are Romanian standards and European / international standards adopted as national standards.

Reference	Title
SR 438-1:2012	Steel products for concrete reinforcement – Part 1: Hot rolled structural steel – Grades and quality technical requirements; *Produse de oţel pentru armarea betonului – Partea 1: Oţel beton laminat la cald – Mărci şi condiţii tehnice de calitate*
SR 438-2:2012	Steel products for concrete reinforcement – Part 2: Cold drawn round wire; *Produse de oţel pentru armarea betonului – Partea 2: Sârmă rotundă trefilată*
SR 438-3:2012	Steel products for reinforcement of concrete – Part 3: Welded fabric; *Produse de oţel pentru armarea betonului – Partea 3: Plase sudate*
SR 832:2008	Influences of electrical installations of high voltage on the communication networks – Prescriptions; *Influenţe ale instalaţiilor electrice de înaltă tensiune asupra liniilor de telecomunicaţii – Prescripţii*
SR 2970:2005	Precast columns of reinforced and prestressed concrete for overhead electrical lines – General technical requirements for quality; *Stâlpi prefabricați din beton armat și beton precomprimat pentru linii electrice aeriene – Condiții tehnice generale de calitate*
SR 6290:2004	Crossings between overhead transmission lines and telecommunication lines; *Încrucişări între liniile de energie electrică şi liniile de telecomunicaţii*
SR 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; *Caracteristici ale perturbațiilor de frecvență radio produse de liniile electrice aeriene și echipamentele electrice de înaltă tensiune – Partea 2: Metode de măsurare și procedură pentru determinarea valorilor limită*
SR EN 1993-1-8	Eurocode 3: Design of steel structures – Part 1-8: Joints; *Eurocod 3: Proiectarea structurilor de oţel – Partea 1-8: Îmbinări*
SR EN 10025-2	Hot rolled products of structural steels – Part 2: Technical delivery conditions for non-alloy structural steels; *Produse laminate la cald din oțeluri de construcții – Partea 2: Condiții tehnice de livrare pentru oțeluri de construcții nealiate*
SR EN 10244-1	Steel wire and wire products – Non-ferrous metallic coatings on steel wire – Part 1: General principles; *Sârme şi produse trefilate de oţel – Acoperiri metalice neferoase pe sârme de oţel – Partea 1: Principii generale*
SR EN 10244-2	Steel wire and wire products – Non-ferrous metallic coatings on steel wire – Part 2: Zinc or zinc alloy coatings; *Sârme și produse trefilate din oțel – Acoperiri metalice neferoase pe sârmă de oțel – Partea 2: Acoperiri de zinc sau aliaj de zinc*
SR EN 50182	Conductors for overhead lines – Round wire concentric lay stranded conductors; *Conductoare pentru linii aeriene – Conductoare cu sârme rotunde cablate în straturi concentrice*

Reference	Title
SR EN 50326	Conductors for overhead lines – Characteristics of greases; *Conductoare pentru linii aeriene – Caracteristici ale produselor de protecţie*
SR EN 50522	Earthing of power installations exceeding 1 kV a.c.; *Legarea la pământ a instalaţiilor electrice cu tensiune alternativă mai mare de1 kV*
SR EN 60038	CENELEC standard voltages; *Tensiuni standardizate de CENELEC*
SR EN 61140	Protection against electric shock – Common aspects for installation and equipment; *Protecţie împotriva şocurilor electrice – Aspecte comune în instalaţii şi echipamente electrice*
SR EN 61467	Insulators for overhead lines – Insulator strings and sets for lines with a nominal voltage greater than 1 000 V – AC power arc tests; *Izolatoare pentru linii aeriene – Lanţuri de izolatoare şi lanţuri de izolatoare echipate pentru linii de tensiune nominală mai mare de 1 000 V – Încercări la arc de putere în curent alternativ*
SR EN 62110	Electric and magnetic field levels generated by AC power systems – Measurement procedures with regard to public exposure; *Nivelurile câmpului electric şi magnetic generat de sistemele de alimentare în curent alternativ – Procedurile de măsurare a nivelurilor de expunere a publicului*
SR EN IEC 60071-1	Insulation co-ordination – Part 1: Definitions, principles and rules; *Coordonarea izolaţiei – Partea 1: Definiţii, principii şi reguli*
SR EN IEC 60071-2	Insulation co-ordination – Part 2: Application guidelines; *Coordonarea izolaţiei – Partea 2: Ghid de aplicare*
SR EN IEC 61284	Overhead lines – Requirements and tests for fittings; *Linii electrice aeriene – Cerințe şi încercări pentru accesorii*
SR EN IEC 61936-1	Power installations exceeding 1 kV AC and 1,5 kV DC – Part 1: AC; *Instalaţii electrice de tensiune alternativă mai mare de 1 kV și de tensiune continuă mai mare de 1,5 kV – Partea 1: Curent electric (tensiune) alternativ(ă)*
SR EN IEC 62641	Conductors for overhead lines – Aluminium and aluminium alloy wires for concentric lay stranded conductors; *Conductoare pentru linii electrice aeriene – Sârme din aluminiu și din aliaj de aluminiu pentru conductoare înfuniate în straturi concentrice*
SR EN IEC 63248	Conductors for overhead lines – Coated or cladded metallic wire for concentric lay stranded conductors; *Conductoare pentru linii electrice aeriene – Sârmă metalică acoperită sau învelită pentru conductoare înfuniate în straturi concentrice*
SR EN ISO 1461	Hot dip galvanized coatings on fabricated iron and steel articles – Specifications and test methods; *Acoperiri prin zincare termică pe produse fabricate din fontă și oțel – Specificații și metode de încercare*

Reference	Title
SR EN ISO 898-1	Mechanical properties of fasteners made of carbon steel and alloy steel – Part 1: Bolts, screws and studs with specified property classes – Coarse thread and fine pitch thread; *Caracteristici mecanice ale elementelor de asamblare executate din oţel carbon şi oţel aliat – Partea 1: Şuruburi parţial şi complet filetate şi prezoane de clase de calitate specificate – Filete cu pas grosolan şi filete cu pas fin*
SR EN ISO 898-2	Fasteners – Mechanical properties of fasteners made of carbon steel and alloy steel – Part 2: Nuts with specified property classes; *Caracteristici mecanice ale elementelor de asamblare executate din oţel carbon şi oţel aliat – Partea 2: Piuliţe de clase de calitate specificate*
SR EN ISO 9223	Corrosion of metals and alloys – Corrosivity of atmospheres – Classification, determination and estimation; *Coroziunea metalelor şi aliajelor – Corozivitatea atmosferelor – Clasificare, determinare şi estimare*
SR EN ISO 9224	Corrosion of metals and alloys – Corrosivity of atmospheres – Guiding values for the corrosivity categories; *Coroziunea metalelor şi aliajelor – Corozivitatea atmosferelor – Valori de referinţă pentru clasele de corozivitate*
SR EN ISO 9225	Corrosion of metals and alloys – Corrosivity of atmospheres – Measurement of environmental parameters affecting corrosivity of atmospheres; *Coroziunea metalelor şi aliajelor – Corozivitatea atmosferelor – Măsurarea parametrilor de mediu care afectează corozivitatea atmosferelor*
SR ISO 1996-1	Acoustics – Description, measurement and assessment of environmental noise – Part 1: Basic quantities and assessment procedures; *Acustică – Descrierea, măsurarea și evaluarea zgomotului ambiant – Partea 1: Mărimi fundamentale și metode de evaluare*
SR ISO 1996-2	Acoustics – Description, measurement and assessment of environmental noise – Part 2: Determination of sound pressure levels; *Acustică – Descrierea, măsurarea şi evaluarea zgomotului ambient*
SR ISO 3864-1	Graphic symbols – Security signs and colours – Part 1: Design principles for safety signs and safety marks; *Simboluri grafice – Culori şi semne de securitat – Partea 1: Principii de proiectare pentru semne de securitate şi marcaje de securitate*
SR ISO 9613-2	Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation; *Acustică – Atenuarea sunetului propagat în aer liber – Partea 2: Metodă generală de calcul*
STAS 4068/1-82	Maximum water discharges and storage – Determination of maximum water discharges and storage of watercourses; *Debite şi volume maxime de apă – Determinarea debitelor şi volumelor maxime ale cursurilor de apă*
STAS 4068/2-87	Maximum water discharges and storages – Yearly probabilities of maximum water discharges and storages under normal and special working conditions; *Debite şi volume maxime de apă – Probabilităţile anuale ale debitelor şi volumelor maxime în condiţii normale şi speciale de exploatare*
STAS 4273-83	Water constructional works – Integrating with importance classes; *Construcţii hidrotehnice – Încadrarea în clase de importanţă*