EESTI STANDARD EVS-EN 50160:2007

Voltage characteristics of electricity supplied by public distribution networks

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EESTI STANDARDIKESKUS

EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 50160:2007 sisaldab Euroopa standardi EN 50160:2007 ingliskeelset teksti. Käesolev dokument on jõustatud 23.11.2007 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 50160:2007 consists of the English text of the European standard EN 50160:2007. This document is endorsed on 23.11.2007 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: Käesolev standard normib madal- ja keskpingeelektrivõrkude pinge olulisemad tunnussuurused tarbija liitumispunktis normaaltalitlustingimustel. Standard normib iga tarbija oodatavad toitepinge tunnussuurused või nende piirväärtused, kuid ei kirjelda toitevõrku ühendatud tarbija keskmist olukorda.	**Scope:** This European Standard defines, describes and specifies the main characteristics of the voltage at a network user's supply terminals in public low voltage and medium voltage electricity distribution networks under normal operating conditions. This standard describes the limits or values within which the voltage characteristics can be expected to remain over the whole of the public distribution network and does not describe the average situation usually experienced by an individual network user.

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English version

Voltage characteristics of electricity supplied by public distribution networks

Caractéristiques de la tension fournie par les réseaux publics de distribution

Merkmale der Spannung in öffentlichen Elektrizitätsversorgungsnetzen

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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.

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CENELEC

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

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Foreword

This European Standard was prepared by the Working Group 1, Physical characteristics of electrical energy, of the Technical Committee CENELEC TC 8X, System aspects for electrical energy supply.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50160 on 2007-06-01.

This European Standard supersedes EN 50160:1999 + corrigendum September 2004.

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)	2008-06-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2010-06-01

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1 Scope and object

1.1 Scope

This European Standard defines, describes and specifies the main characteristics of the voltage at a network user's supply terminals in public low voltage and medium voltage electricity distribution networks under normal operating conditions. This standard describes the limits or values within which the voltage characteristics can be expected to remain over the whole of the public distribution network and does not describe the average situation usually experienced by an individual network user.

NOTE 1 For the definitions of low and medium voltage see 3.7 and 3.8.

The European Standard does not apply under abnormal operating conditions including the following:

– a temporary supply arrangement to keep the network users supplied during condition arising as a result of a fault, maintenance and construction work or to minimize the extent and duration of a loss of supply;

– in case of non-compliance of a network user's installation or equipment with the relevant standards or with the technical requirements for connection, established either by the public authorities or the distribution network operator (DNO) including the limits for the emission of conducted disturbances;

NOTE 2 A network user’s installation may include load as well as generation.

– in exceptional situations, in particular,
  – exceptional weather conditions and other natural disasters,
  – third party interference,
  – acts by public authorities,
  – industrial actions (subject to legal requirements),
  – force majeure,
  – power shortages resulting from external events.

The voltage characteristics given in this standard are not intended to be used as electromagnetic compatibility (EMC) levels or user emission limits for conducted disturbances in public distribution networks.

The voltage characteristics given in this standard are not intended to be used to specify requirements in equipment product standards and in installation standards.

NOTE 3 The performance of equipment might be impaired if it is subjected to supply conditions which are not specified in the equipment product standard.

This standard may be superseded in total or in part by the terms of a contract between the individual network user and the DNO.

1.2 Object

The object of this European Standard is to define and describe the characteristics of the supply voltage concerning

– frequency,
– magnitude,
– wave form,
– symmetry of the line voltages.

These characteristics are subject to variations during the normal operation of a supply system due to changes of load, disturbances generated by certain equipment and the occurrence of faults which are mainly caused by external events.

The characteristics vary in a manner which is random in time, with reference to any specific supply terminal, and random in location, with reference to any given instant of time. Because of these variations, the levels of the characteristics can be expected to be exceeded on a small number of occasions.

Some of the phenomena affecting the voltage are particularly unpredictable, which make it very difficult to give useful definite values for the corresponding characteristics. The values given in this standard for such phenomena, e.g. voltage dips and voltage interruptions, shall be interpreted accordingly.

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.

IEC 60050-161 International Electrotechnical Vocabulary - Chapter 161: Electromagnetic compatibility

3 Definitions

For the purposes of this document, the following terms and definitions apply.

3.1
network user
party being supplied by or supplying to an electricity distribution network

3.2
distribution network operator (DNO)
party responsible for operating, ensuring the maintenance of and, if necessary, developing the distribution network in a given area and, for ensuring the long term ability of the network to meet reasonable demands for the distribution of electricity

3.3
supply terminal
point in a distribution network designated as such and contractually fixed, at which electrical energy is exchanged between contractual partners

NOTE This point can differ from, for example, the electricity metering point or the point of common coupling.

3.4
supply voltage
r.m.s. value of the voltage at a given time at the supply terminal, measured over a given interval

3.5
nominal voltage (U_n)
voltage by which a distribution network is designated or identified and to which certain operating characteristics are referred