

This is a free page sample. Access the full version online.

This page is intentionally left BLANK.

HARMONIZATION DOCUMENT DOCUMENT D'HARMONISATION HARMONISIERUNGSDOKUMENT

May 1999

HD 637 S1

ICS 29.240.00

English version

Power installations exceeding 1 kV a.c.

Installations électriques de tensions nominales supérieures à 1 kV en courant alternatif Starkstromanlagen mit Nennwechselspannungen über 1 kV

This Harmonization Document was approved by CENELEC on 1999-01-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document 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 Harmonization Document exists in three official versions (English, French, German).

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

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

[©] 1999 CENELEC - All rights of exploitation in any form and by any means reserved worldwide for CENELEC members.

Page 2 HD 637 S1:1999

Foreword

This Harmonization Document was prepared by the Technical Committee CENELEC TC 99X "Power Installations exceeding AC 1 kV (DC 1,5 kV)".

The text of the draft was submitted to the formal vote and was approved by CENELEC as HD 637 S1 on 1999-01-01.

During the draft stage this standard was labelled prEN 50179; it is cited under this number in various other European Standards, such as EN 50110-1.

The purpose of this Harmonization Document is to provide, in a convenient form, general requirements for the design and the erection of electrical power installations in systems with nominal voltages above 1 kV a.c.

There are many national laws, standards and internal rules dealing with the matter coming within the scope of this standard and these practices have been taken as a basis for this work.

The standard and its normative and informative annexes identifies installation characteristics which represent the minimum attainable for all CENELEC countries under stated conditions. These characteristics ensure an acceptable reliability of an installation and its safe operation.

The standard is supplemented by an informative annex of A-deviations and a normative annex of Special National Conditions and National Provisions (part of national standards, specifications or practices). These annexes identify, as appropriate, where such minimum attainable characteristics require adjustments to take account of national legislation and/or the local environment.

This concept is believed to be a first decisive step to the gradual alignment in Europe of the practices concerning the design and erection of power installations.

The following dates were fixed:

-	latest date by which the existence of the HD has to be announced at national level	(doa) 1999-07-01
-	latest date by which the HD has to be implemented at national level by publication of a harmonized national standard or by endorsement	(dop) 2000-01-01
-	latest date by which the national standards conflicting with the HD have to be withdrawn	(dow) 2001-01-01

Annexes designated "normative" are part of the body of the standard. Annexes designated "informative" are given for information only. In this standard, annexes A to G and T are normative and annexes H to S and U are informative.

Table of Contents

FOREWORD				
1 S	COPE AND NORMATIVE REFERENCES	8		
2 D	EFINITIONS	12		
2.1	GENERAL DEFINITIONS			
2.2	INSTALLATIONS	12		
2.3	TYPES OF INSTALLATIONS	13		
2.4	SAFETY MEASURES AGAINST ELECTRIC SHOCK	13		
2.5	CLEARANCES	14		
2.6	CONTROL AND PROTECTION	14		
2.7	Earthing	14		
3 FI	UNDAMENTAL REQUIREMENTS	22		
3.1	ELECTRICAL REQUIREMENTS			
3.1.1	Methods of neutral earthing			
3.1.2	Voltage classification			
3.1.3	Current in normal operation			
3.1.4	Short circuit current			
3.1.5	Rated frequency			
3.1.6	Corona			
3.2	MECHANICAL REQUIREMENTS			
3.2.1	Tension load			
3.2.2	Erection load			
3.2.3	Ice load			
3.2.4	Wind load			
3.2.5	Switching forces			
3.2.6	Short-circuit forces			
3.2.7	Loss of conductor tension			
3.2.8	Vibration			
3.2.9	Dimensioning of supporting structures			
3.3	CLIMATIC AND ENVIRONMENTAL CONDITIONS			
3.3.1	Temperature			
3.3.2	Altitude and air pressure			
3.3.3	Humidity			
3.3.4	Precipitation			
3.3.5	Pollution			
3.3.6	Solar radiation	27		
3.4	SPECIAL REQUIREMENTS			
3.4.1	Installations at high altitudes	27		
3.4.2	Effects of small animals and microorganisms			
3.4.3	Noise level			
3.4.4	Effects of earthquakes	28		
4 IN	SULATION	29		
4.1	SELECTION OF INSULATION LEVEL	20		
4.1	VERIFICATION OF WITHSTAND VALUES.			
4.2	MINIMUM CLEARANCES OF LIVE PARTS			
4.4	MINIMUM CLEARANCES BETWEEN PARTS UNDER SPECIAL CONDITIONS.			
4.4	TESTED CONNECTION ZONES.			
5.1	COMMON RULES			
5.1.1	General			
5.1.2	Installation	33		

Page 4 HD 637 S1:1999

5.2	SPECIFIC REQUIREMENTS	.33			
5.2.1	Circuit-breakers, switch-disconnectors, fuses, fuse-switch disconnectors,				
	contactors, disconnectors and earthing switches	. 33			
5.2.2	Power transformers and reactors				
5.2.3	Gas insulated metal-enclosed switchgear (GIS), metal-enclosed switchgear,				
	insulation-enclosed switchgear, and other prefabricated type-tested switchgear				
	assemblies	. 34			
5.2.4	Instrument transformers				
5.2.5	Surge arresters				
5.2.6	Capacitors				
5.2.7	Line traps				
5.2.8	Insulators				
5.2.9	Insulated cables				
5.2.10	Conductors and accessories				
5.2.11	Rotating machines				
5.2.12	Static converters	. 39			
6 IN	STALLATIONS	40			
6.1	GENERAL REQUIREMENTS				
6.1.1	Circuit arrangement				
6.1.2	Documentation				
6.1.3	Transport routes				
6.1.4	Aisles and access areas				
6.1.5	Lighting				
6.1.6	Operational safety				
6.1.7	Labelling				
6.2	OPEN-TYPE OUTDOOR INSTALLATIONS				
6.2.1	Barrier clearances				
6.2.2	Obstacle clearances				
6.2.3	Boundary clearances				
6.2.4	Minimum height over access area				
6.2.5	Clearances to buildings				
6.2.6	External fences and access doors				
6.3	OPEN-TYPE INDOOR INSTALLATIONS.				
6.4	INSTALLATION OF FACTORY-BUILT, TYPE-TESTED ENCLOSED SWITCHGEAR				
6.4.1	General				
6.4.2	Additional requirements for gas-insulated metal-enclosed switchgear				
6.5	REQUIREMENTS FOR BUILDINGS.				
6.5.1	Introduction				
6.5.2	Structural provisions				
6.5.3 6.5.4	Rooms for switchgear Service areas				
6.5.4 6.5.5					
6.5.6 6.5.6	Doors Draining of dielectric fluids				
6.5.7	Air conditioning and ventilation				
6.5.8	Buildings which require special consideration				
6.6	HIGH-VOLTAGE / LOW-VOLTAGE PREFABRICATED SUBSTATIONS				
0.0 6.7	MAST, POLE AND TOWER INSTALLATIONS				
7 SAFETY MEASURES					
7.1	PROTECTION AGAINST DIRECT CONTACT	54			
7.1.1	General	54			
7.1.2	Measures for protection against direct contact	. 54			
7.1.3	Protection requirements				
7.2	MEANS TO PROTECT PERSONS IN CASE OF INDIRECT CONTACT.	56			



This is a free preview. Purchase the entire publication at the link below:

Product Page

S Looking for additional Standards? Visit Intertek Inform Infostore

> Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation