SLOVENSKI STANDARD
SIST EN 61803:2001/A1:2011

01-februar-2011

Ugotavljanje močnostnih izgub v visokonapetostnih enosmernih pretvornikih (HVDC) z vodovno komutiranimi pretvorniki - Dopolnilo A1 (IEC 61803:1999/A1:2010)

Determination of power losses in high-voltage direct current (HVDC) converter stations with line-commutated converters (IEC 61803:1999/A1:2010)

Bestimmung der Leistungsverluste in Hochspannungsgleichstrom-(HGÜ-) Stromrichterstationen mit netzgeführten Stromrichtern (IEC 61803:1999/A1:2010)

Détermination des pertes en puissance dans les postes de conversion en courant continu à haute tension (CCHT) munis de convertisseurs commutés par le réseau (CEI 61803:1999/A1:2010)

Ta slovenski standard je istoveten z: **EN 61803:1999/A1:2010**

ICS:

29.200	Usmerniki. Pretvorniki. Stabilizirano električno napajanje	Rectifiers. Convertors. Stabilized power supply

SIST EN 61803:2001/A1:2011 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61803/A1

December 2010

ICS 29.200

English version

Determination of power losses in high-voltage direct current (HVDC) converter stations with line-commutated converters

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This amendment A1 modifies the European Standard EN 61803:1999; it was approved by CENELEC on 2010-12-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 Central Secretariat or to any CENELEC member.

This amendment 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 Central Secretariat 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 61803:1999/A1:2010 E

Foreword

The text of document 22F/214/CDV, future amendment 1 to IEC 61803:1999, prepared by SC 22F, Power electronics for electrical transmission and distribution systems, of IEC TC 22, Power electronic systems and equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A1 to EN 61803:1999 on 2010-12-01.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

The following dates were fixed:

– latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2011-09-01
– latest date by which the national standards conflicting with the amendment have to be withdrawn	(dow)	2013-12-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of amendment 1:2010 to the International Standard IEC 61803:1999 was approved by CENELEC as an amendment to the European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 61378-2:2001 NOTE Harmonized as EN 61378-2:2001 (not modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
Delete the following reference:				
IEC 60289 (mod)	1988	Reactors	EN 60289	1994
Replace the existing references to IEC 60076-1:1993, IEC 60633:1998, IEC 60700-1:1988, IEC 60747-6:1983 and IEC 60871-1:1997 as follows:				
IEC 60076-1	-	Power transformers - Part 1: General	EN 60076-1	-
IEC 60633	-	Terminology for high-voltage direct current (HVDC) transmission	EN 60633	-
IEC 60700-1	-	Thyristor valves for high voltage direct current (HVDC) power transmission - Part 1: Electrical testing	EN 60700-1	-
IEC 60747-6	-	Semi conductor devices - Part 6: Thyristors	-	-
IEC 60871-1	-	Shunt capacitors for a.c. power systems having a rated voltage above 1 000 V - Part 1: General	EN 60871-1	-
Add the following new reference:				
IEC 60076-6	2007	Power transformers - Part 6: Reactors	EN 60076-6	2008

IEC 61803

Edition 1.0 2010-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

Determination of power losses in high-voltage direct current (HVDC) converter stations with line-commutated converters

Détermination des pertes en puissance dans les postes de conversion en courant continu à haute tension (CCHT) munis de convertisseurs commutés par le réseau

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

PRICE CODE
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FOREWORD

This amendment has been prepared by subcommittee 22F: Power electronics for electrical transmission and distribution systems, of IEC technical committee 22: Power electronic systems and equipment.

The text of this amendment is based on the following documents:

CDV	Report on voting
22F/214/CDV	22F/224/RVC

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

Determination of power losses in high-voltage direct current (HVDC) converter stations.

Replace the title of the document as follows:

Determination of power losses in high-voltage direct current (HVDC) converter stations with line-commutated converters

2 Normative references

Delete the following reference:

IEC 60289:1988, *Reactors*

Replace the existing references to IEC 60076-1:1993, IEC 60633:1998, IEC 60700-1:1988, IEC 60747-6:1983 and IEC 60871-1:1997 as follows:

IEC 60076-1, *Power transformers – Part 1: General*

IEC 60633, *Terminology for high-voltage direct current (HVDC) transmission*

IEC 60700-1, *Thyristor valves for high voltage direct current (HVDC) power transmission – Part 1: Electrical testing*

IEC 60747-6, *Semiconductor devices – Part 6: Thyristors*

IEC 60871-1, *Shunt capacitors for a.c. power systems having a rated voltage above 1 000 V – Part 1: General*

Add the following new reference:

IEC 60076-6, *Power transformers – Part 6: Reactors*

3 Definitions and symbols

3.1 Definitions

Add the following new definition

3.1.7
station essential auxiliary load
load whose failure will affect the conversion capability of the HVDC converter station (e.g. valve cooling), as well as load that must remain working in case of complete loss of a.c. power supply (e.g. battery chargers, operating mechanisms)

NOTE Total "operating losses" minus "no load operation losses" may be considered as being quantitatively equivalent to "load losses" as in conventional a.c. substation practice.

3.2 Letter symbols

Replace the definitions of letter symbols α, μ, Id, R and U_{v0} *as follows:*

α (trigger) delay angle, in radians (rad)

μ overlap angle, in radians (rad)

I_d direct current, in amperes (A)

R resistance value, in ohms (Ω)

U_{v0} r.m.s. value of the phase-to-phase no-load voltage on the valve side of the converter transformer excluding harmonics, in volts (V)

4.2.1 Outdoor standard reference temperature

Add, after the first sentence, the following new sentence:

Corresponding valve hall temperature may be defined by the supplier if necessary.

Add the following note:

NOTE If not defined, the wet-bulb temperature is recommended to be 14 °C which corresponds to approximately 50 % RH at 20 °C dry bulb temperature.

4.3 Operating parameters

Add the following words at the end of the fourth paragraph:

"… or as decided by the control system for the defined operating condition".