SLOVENSKI STANDARD
SIST EN 60384-14:2014/A1:2017

01-januar-2017

Nespremenljivi kondenzatorji za uporabo v elektronskih napravah - 14. del: Področna specifikacija - Nespremenljivi kondenzatorji za dušenje elektromagnetnega motenja in za povezovanje z omrežnim napajanjem (IEC 60384-14:2013/A1:2016) - Dopolnilo A1

Fixed capacitors for use in electronic equipment - Part 14: Sectional specification - Fixed capacitors for electromagnetic interference suppression and connection to the supply mains (IEC 60384-14:2013/A1:2016)

Festkondensatoren zur Verwendung in Geräten der Elektronik - Teil 14: Rahmenspezifikation - Festkondensatoren zur Unterdrückung elektromagnetischer Störungen, geeignet für Netzbetrieb (IEC 60384-14:2013/A1:2016)

Condensateurs fixes utilisés dans les équipements électroniques - Partie 14: Spécification intermédiaire - Condensateurs fixes d'antiparasitage et raccordement à l'alimentation (IEC 60384-14:2013/A1:2016)

Ta slovenski standard je istoveten z: **EN 60384-14:2013/A1:2016**

ICS:

31.060.10	Fiksni kondenzatorji	Fixed capacitors

SIST EN 60384-14:2014/A1:2017 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60384-14:2013/A1

November 2016

ICS 31.060.10

English Version

Fixed capacitors for use in electronic equipment - Part 14: Sectional specification - Fixed capacitors for electromagnetic interference suppression and connection to the supply mains (IEC 60384-14:2013/A1:2016)

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This amendment A1 modifies the European Standard EN 60384-14:2013; it was approved by CENELEC on 2016-08-18. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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CENELEC

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

The text of document 40/2463/FDIS, future IEC 60384-14:2013/A1, prepared by IEC/TC 40 "Capacitors and resistors for electronic equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60384-14:2013/A1:2016.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2017-05-18
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-08-18

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

Endorsement notice

The text of the International Standard IEC 60384-14:2013/A1:2016 was approved by CENELEC as a European Standard without any modification.

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

IEC 60939-3:2015	NOTE	Harmonized as EN 60939-3:2015 (not modified).

IEC 60384-14

Edition 4.0 2016-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

Fixed capacitors for use in electronic equipment – Part 14: Sectional specification – Fixed capacitors for electromagnetic interference suppression and connection to the supply mains

Condensateurs fixes utilisés dans les équipements électroniques – Partie 14: Spécification intermédiaire – Condensateurs fixes d'antiparasitage et raccordement à l'alimentation

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

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FOREWORD

This amendment has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment.

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

FDIS	Report on voting
40/2463/FDIS	40/2469/RVD

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 website 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.

1.1 Scope

Replace, in the scope, the value "1 000 V d.c." *by* "1 500 V d.c."

1.4 Information to be given in a detail specification

Add, after the third paragraph and before the NOTE, the following new paragraph:

Requirements for safety approved a.c. capacitors to be used in d.c. applications are found in Annex H.

4.12 Damp heat, steady state

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

Requirements for capacitors used in high humidity applications are contained in Annex I.

Add, after the existing Annex G, the new Annex H and Annex I, as follows:

Annex H
(normative)

Use of safety approved a.c. rated capacitors in d.c. applications

H.1 Overview

This annex gives additional requirements for a.c. EMI suppression capacitors for which safety approval is sought and which are connected to a d.c. supply with nominal voltage not exceeding 1 500 V d.c.

If a safety approved capacitor fulfils the requirements of this annex, it is qualified at the d.c. rated voltage exceeding its approved a.c. rated voltage, without changing the capacitor class.

H.2 Background

Safety capacitors approved to this standard are a.c. capacitors which are essentially designed for applications where a.c. voltage is applied.

They have been allowed to be used in d.c. supplies having the same voltage as the a.c. r.m.s. rated voltage of the capacitors. (See 1.5.1, Note 1 to entry).

The class of the capacitors, such as X1 and Y1, is defined according to their peak impulse withstanding voltage and the type of insulation bridged.

A capacitor used for a.c. voltage application is subjected to the voltage waveform with peak voltage equal to r.m.s. voltage times square root of two, which is alternating polarity in a wave cycle, so that safety approved capacitors theoretically can withstand at least a d.c. voltage equivalent to their a.c. rated voltage times square root of two.

H.3 Terms and definitions

H.3.1
d.c. rated voltage
U_R d.c.
maximum d.c. operating voltage, which may be applied continuously to the terminations of a capacitor at any temperature between the lower and the upper category temperatures

Note 1 to entry: This term and designation (U_R d.c.) are used only for a capacitor specified with d.c. rated voltage exceeding its a.c. r.m.s. rated voltage.

Note 2 to entry: This definition replaces that given in IEC 60384-14:2013, 1.5.1.

H.4 Additional requirement for use of X- and Y-capacitors in d.c. applications

A capacitor, which is specified for a d.c. rated voltage exceeding the a.c. r.m.s. rated voltage, shall fulfil the requirements specified in Table H.1 in addition to the tests prescribed in Table 3.

Table H.1 – Additional test conditions

Type	Maximum U_R d.c.	Test voltage d.c. (Test A) (according 4.2.1)	Endurance test (d.c.)	Damp heat, steady state test
X1	1 500 V	2,15 × U_R d.c.	According to 4.14 using d.c. rated voltage instead of U_R, without voltage increased to U_S.	According to 4.12, but with d.c. rated voltage applied to the whole sample.
X2	1 500 V			
Y1	1 500 V	4 × U_R d.c. [a]		
Y2	1 500 V	2,15 × U_R d.c. [a]		
Y4	450 V	2,15 × U_R d.c. [a]		

[a] If an a.c. test voltage is used instead of a d.c. voltage for Y-capacitors, it shall be not less than 0,666 × d.c. test voltage in Table H.1.

H.5 Creepage and clearance distances

When a capacitor approved by this annex is used for a specific application, it shall be confirmed that creepage and clearance distances of the capacitor meet the requirements of the related standards for the application.

NOTE Examples of the specific standards and the requirements mentioned above, see IEC 60939-3: Table 6 and Table 7.

Annex I
(normative)

Humidity robustness grades for applications, where high stability under high humidity operating conditions is required

I.1 Overview

In addition to the description of preferred climatic categories in 2.1.1 and test damp heat, steady state in 4.12, this annex describes specific humidity robustness grades and requirements for applications, where high stability under high humidity operating conditions is required.

I.2 Humidity robustness grades

For high humidity applications the Grades (I) robustness under humidity, Grade (II) robustness under high humidity and Grade (III) high robustness under high humidity are defined.

I.2.1 Grade (I) robustness under humidity

To verify Grade (I), either test condition A or B shall be selected by the manufacturer. For requirements, see Table I.1. In case the capacitors are specified for a.c. and d.c. applications, one sample shall be tested with the rated a.c. voltage, and one sample shall be tested with rated d.c. voltage.

Test condition A: Test damp heat, steady state; 40 °C / 93 % RH duration 21 days, rated voltage applied.

Test condition B: Test damp heat, steady state; 85 °C / 85 % RH duration 168 h, rated voltage applied.

NOTE Test condition B is a substitutional acceleration test for test condition A.

I.2.2 Grade (II) robustness under high humidity

To verify Grade (II), either test condition A or B shall be selected by the manufacturer. For requirements see Table I.1. In case the capacitors are specified for a.c. and d.c. applications, one sample shall be tested with the rated a.c. voltage, and one sample shall be tested with rated d.c. voltage.

Test condition A: Test damp heat, steady state; 40 °C / 93 % RH duration 56 days, rated voltage applied.

Test condition B: Test damp heat, steady state; 85 °C / 85 % RH duration 500 h, rated voltage applied.

NOTE Test condition B is a substitutional acceleration test for test condition A.

I.2.3 Grade (III) high robustness under high humidity

To verify Grade (III), either test condition A or B shall be selected by the manufacturer. For requirements, see Table I.1. In case the capacitors are specified for a.c. and d.c. applications, one sample shall be tested with the rated a.c. voltage, and one sample shall be tested with rated d.c. voltage.