SLOVENSKI STANDARD

SIST EN 61000-4-13:2003/A1:2009

01-november-2009

Elektromagnetna zdruġljivost (EMC) - 4-13. del: Preskusne in merilne tehnike - Harmoniki in medharmoniki, vkljuļ no z napetostnimi signali v omreġju, na vhodu za izmeniļ no napajanje; nizkofrekvenļ ni preskus odpornosti (IEC 61000-4-13:2002/A1:2009)

Electromagnetic compatibility (EMC) -- Part 4-13: Testing and measurement techniques - Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests

Elektromagnetische Verträglichkeit (EMV) -- Teil 4-13: Prüf- und Messverfahren - Prüfungen der Störfestigkeit am Wechselstrom-Netzanschluss gegen Oberschwingungen und Zwischenharmonische einschließlich leitungsgeführter Störgrößen aus der Signalübertragung auf elektrischen Niederspannungsnetzen

Compatibilité électromagnétique (CEM) -- Partie 4-13: Techniques d'essai et de mesure - Essais d'immunité basse fréquence aux harmoniques et inter-harmoniques incluant les signaux transmis sur le réseau électrique alternatif

Ta slovenski standard je istoveten z: **EN 61000-4-13:2002/A1:2009**

ICS:

33.100.20 Imunost Immunity

SIST EN 61000-4-13:2003/A1:2009 **en,fr**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61000-4-13/A1

August 2009

ICS 33.100.20

English version

Electromagnetic compatibility (EMC) - Part 4-13: Testing and measurement techniques - Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests

(IEC 61000-4-13:2002/A1:2009)

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Elektromagnetische Verträglichkeit (EMV) - Teil 4-13: Prüf- und Messverfahren - Prüfungen der Störfestigkeit am Wechselstrom-Netzanschluss gegen Oberschwingungen und Zwischenharmonische einschließlich leitungsgeführter Störgrößen aus der Signalübertragung auf elektrischen Niederspannungsnetzen (IEC 61000-4-13:2002/A1:2009)

This amendment A1 modifies the European Standard EN 61000-4-13:2002; it was approved by CENELEC on 2009-07-01. 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, 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

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 61000-4-13:2002/A1:2009 E

Foreword

The text of document 77A/668/CDV, future amendment 1 to IEC 61000-4-13:2002, prepared by SC 77A, Low frequency phenomena, of IEC TC 77, Electromagnetic compatibility, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A1 to EN 61000-4-13:2002 on 2009-07-01.

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)	2010-04-01
– latest date by which the national standards conflicting with the amendment have to be withdrawn	(dow)	2012-07-01

Endorsement notice

The text of amendment 1:2009 to the International Standard IEC 61000-4-13:2002 was approved by CENELEC as an amendment to the European Standard without any modification.

IEC 61000-4-13

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AMENDMENT 1

AMENDEMENT 1

Electromagnetic compatibility (EMC) – Part 4-13: Testing and measurement techniques – Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests

Compatibilité électromagnétique (CEM) – Partie 4-13: Techniques d'essai et de mesure – Essais d'immunité basse fréquence aux harmoniques et inter-harmoniques incluant les signaux transmis sur le réseau électrique alternatif

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

This amendment has been prepared by subcommittee 77A: Low frequency phenomena, of IEC technical committee 77: Electromagnetic compatibility.

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

Enquiry draft	Report on voting
77A/668/CDV	77A/684/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 maintenance result 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.

5.2 Test levels for interharmonics and mains signalling

Replace the last paragraph of this subclause, the paragraph below Table 4b, by the following:

Immunity test levels for interharmonics above 100 Hz are based on the mains signalling levels or by the Meister curve levels defined in 8.2.4 depending on the class of equipment being tested. Mains signalling levels are in the range of 2 % to 6 % of U_1. Discrete interharmonic frequencies have a level of about 0,5 % of the fundamental frequency voltage U_1 (in absence of resonance). In class 3 for industrial networks, these levels can be considerably higher.

Figure 1 Test flowcharts

Replace Figures 1a and 1b by the following:

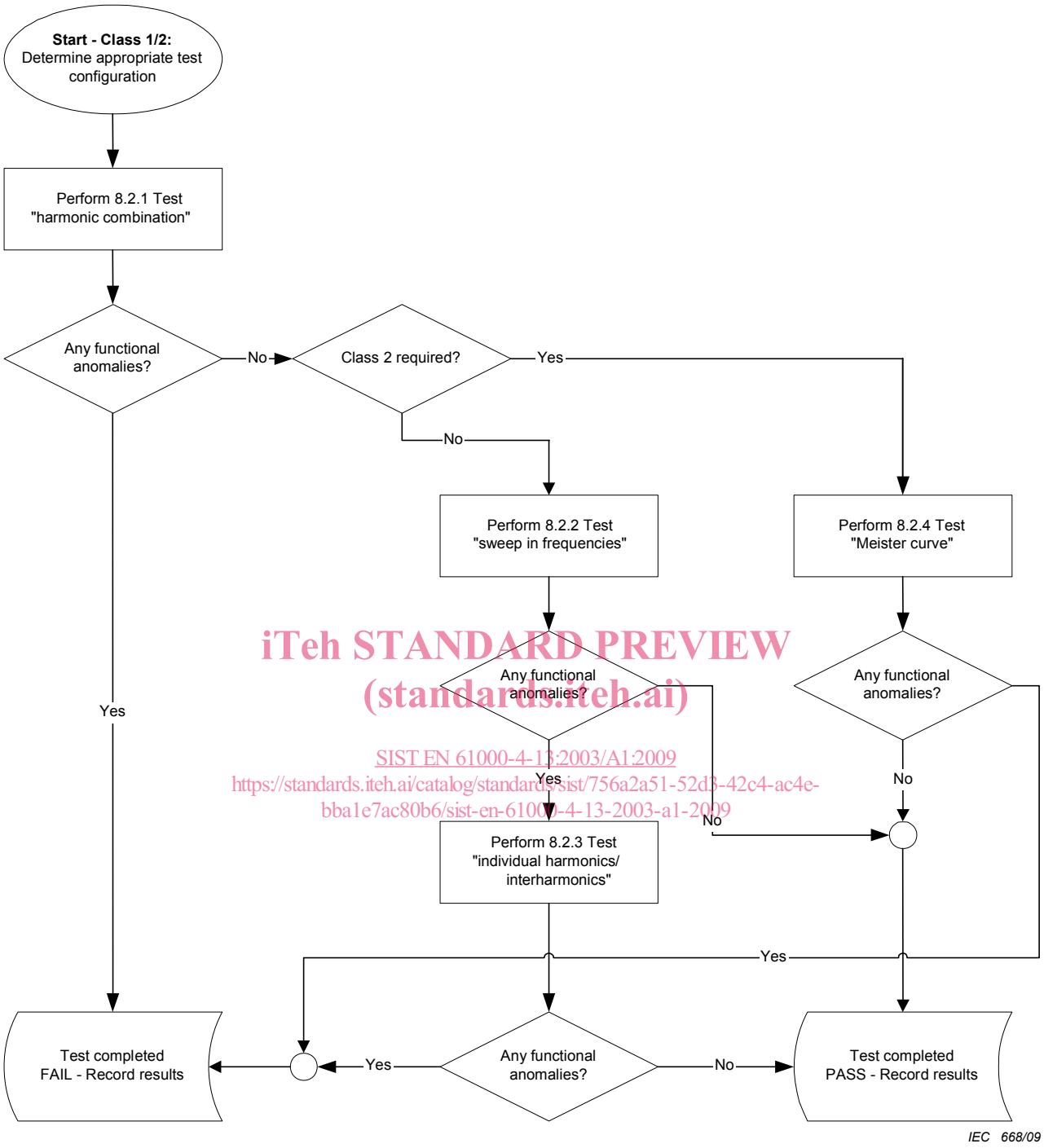

Figure 1a – Test flowchart class 1 and class 2

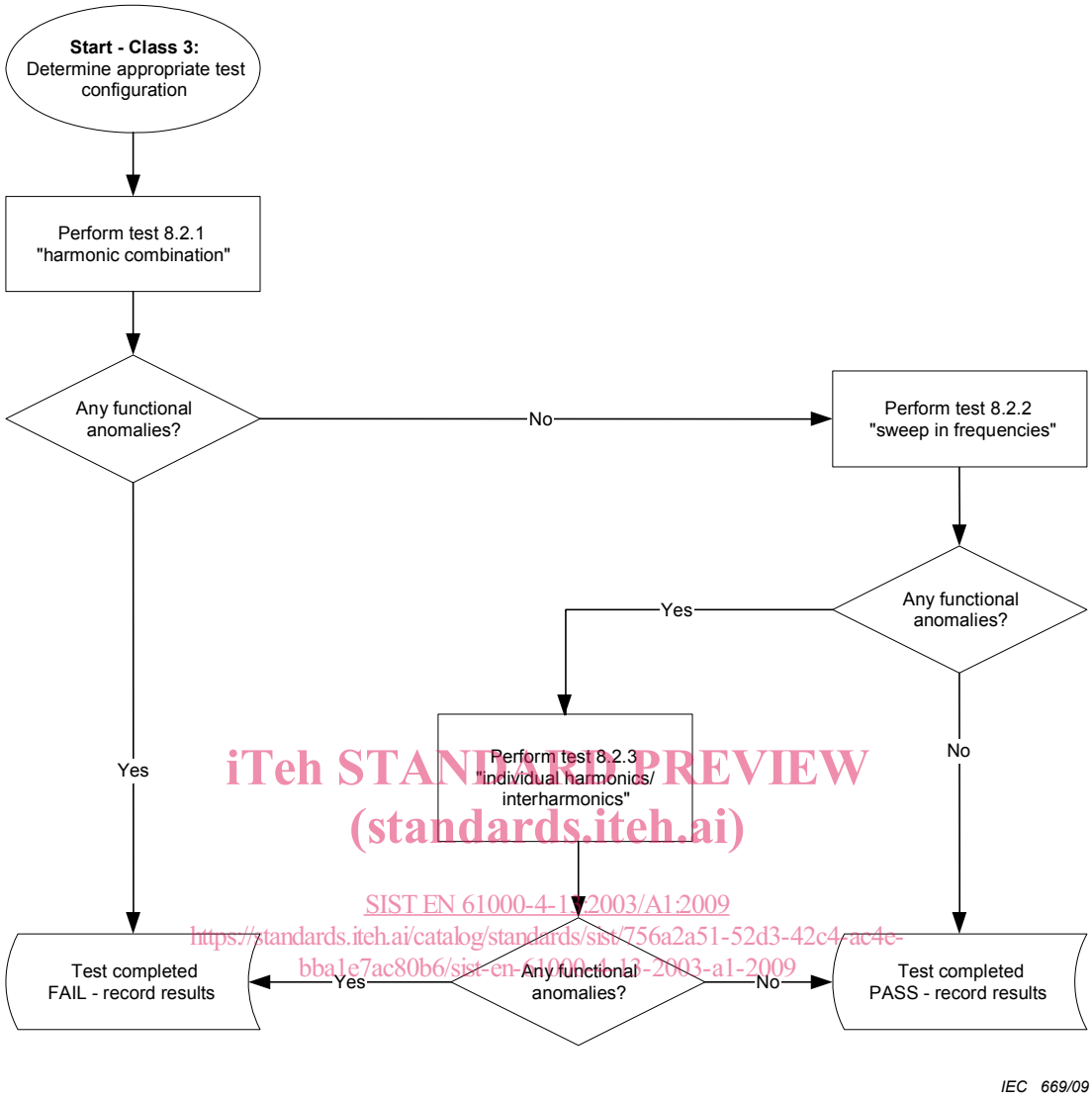

Figure 1b – Test flowchart class 3

Figure 1 – Test flowcharts

8.2.1 Harmonic combination test flat curve and over swing

Replace the entire subclause by the following:

The two harmonic combination tests to be carried out are flat curve and over swing. The EUT shall be tested for each harmonic combination, according to Tables 7 and 8 for 2 min. The time-domain waveforms are shown in Figures 6 and 7 for the flat curve and over swing tests respectively.

Flat curve: the voltage follows a time related function in which each half-wave consists of three parts. See Figure 6.

– Part 1 starts from zero, it follows a pure sine function up to 95% of the peak value for Class 1, 90 % of the peak value for Class 2 and up to 80 % for Class 3.

– Part 2 is a constant voltage.

– Part 3 is equivalent to Part 1 (following a pure sine function).

The r.m.s. value of the resultant waveform shall be maintained at nominal voltage during the application of this test. This means that the sinusoidal part of the waveform has to be increased in amplitude by the factor K_y shown in Table 7.

Table 7 – Time related function, "flat curve"

Function (Parts 1 and 3)	Voltage Ratio K_y	Voltage (Parts 1 and 3)	Function (Part 2)	Voltage (Part 2)	Class
$0 \le \lvert\sin(\omega t)\rvert \le 0{,}95$	1,013 3	$u = U_1 \times K_1 \times \sqrt{2} \times \sin(\omega t)$	$0{,}95 \le \lvert\sin(\omega t)\rvert \le 1$	$u = \pm 0{,}95 \times U_1 \times K_1 \times \sqrt{2}$	1
$0 \le \lvert\sin(\omega t)\rvert \le 0{,}9$	1,037 9	$u = U_1 \times K_2 \times \sqrt{2} \times \sin(\omega t)$	$0{,}9 \le \lvert\sin(\omega t)\rvert \le 1$	$u = \pm 0{,}9 \times U_1 \times K_2 \times \sqrt{2}$	2
$0 \le \lvert\sin(\omega t)\rvert \le 0{,}8$	1,111 7	$u = U_1 \times K_3 \times \sqrt{2} \times \sin(\omega t)$	$0{,}8 \le \lvert\sin(\omega t)\rvert \le 1$	$u = \pm 0{,}8 \times U_1 \times K_3 \times \sqrt{2}$	3
$0 \le \lvert\sin(\omega t)\rvert \le X$	X	$u = U_1 \times K_x \times \sqrt{2} \times \sin(\omega t)$	$X \le \lvert\sin(\omega t)\rvert \le 1$	$u = \pm X \times U_1 \times K_x \times \sqrt{2}$	X
NOTE 1 Classes 1, 2, and 3 are defined in Annex C. NOTE 2 The levels given for class X are open. The level must be defined by the product committees. However, for equipment for use in public supply systems the values must not be lower than those of class 2. NOTE 3 Maximum deviation: $\Delta u = \pm(0{,}01 \times U_1 \times \sqrt{2} + 0{,}005 \times u)$.					

Over swing: Over swing is generated by adding a discrete value of the 3rd harmonic and also of the 5th harmonic both with a corresponding phase relationship.

Table 8 – Harmonic combination, "over swing"

h	3	5	Class
% of U_1	4 % / 180°	3 % / 0°	1
% of U_1	6 % / 180°	4 % / 0°	2
% of U_1	8 % / 180°	5 % / 0°	3
% of U_1	X / 180°	X / 0°	X
NOTE 1 Classes 1, 2, and 3 are defined in Annex C. NOTE 2 The levels given for class X are open. Thee level has to be defined by the product committees. However, for equipment for use in public supply systems, the values must not be lower than those of class 2.			

8.2.2 Test method “Sweep in frequencies”

Replace the entire text of this subclause by the following new text. Table 9 at the end of this subclause remains unchanged.

The equipment set-up for sweep frequency tests are shown in Figures 2 and 3. The amplitude of the sweep frequencies depends on the frequency range (see Table 9 and Figure 5). The sweep (analogue) or step rate (digital) should be such that the time taken per decade is no less than 5 min, as shown in Figure 5. The frequency sweep will dwell at frequencies where performance anomalies are detected. At each dwell point, the test time should be at least 120 s.

NOTE Anomalies can also be caused by resonances. Further details are described in Annex B.

8.2.4 Application of the Meister curve

Delete the first paragraph.

Replace the second paragraph by the following new text: