



Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
des produits et services

ILNAS-EN 61000-4-13:2002

Electromagnetic compatibility (EMC) - Part 4-13: Testing and measurement techniques - Harmonics and interharmonics including mains

Elektromagnetische Verträglichkeit (EMV)

- Teil 4-13: Prüf- und Messverfahren -
Prüfungen der Störfestigkeit am
Wechselstrom-Netzanschluss gegen

Compatibilité électromagnétique (CEM) -

Partie 4-13: Techniques d'essai et de
mesure - Essais d'immunité basse
fréquence aux harmoniques et inter-

06/2002

National Foreword

This European Standard EN 61000-4-13:2002 was adopted as Luxembourgish Standard ILNAS-EN 61000-4-13:2002.

Every interested party, which is member of an organization based in Luxembourg, can participate for FREE in the development of Luxembourgish (ILNAS), European (CEN, CENELEC) and International (ISO, IEC) standards:

- Participate in the design of standards
- Foresee future developments
- Participate in technical committee meetings

<https://portail-qualite.public.lu/fr/normes-normalisation/participer-normalisation.html>

THIS PUBLICATION IS COPYRIGHT PROTECTED

Nothing from this publication may be reproduced or utilized in any form or by any mean - electronic, mechanical, photocopying or any other data carries without prior permission!

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)

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
 (CEI 61000-4-13:2002)

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)

This European Standard was approved by CENELEC on 2002-05-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard 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 European Standard 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, 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

Foreword

The text of document 77A/368/FDIS, future edition 1 of IEC 61000-4-13, 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 EN 61000-4-13 on 2002-05-01.

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) 2003-02-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2005-05-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annex ZA is normative and annexes A, B and C are informative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61000-4-13:2002 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60068-1	NOTE	Harmonized as EN 60068-1:1994 (not modified).
IEC 61000-2-4	NOTE	Harmonized as EN 61000-2-4:1994 (not modified).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-161	- ¹⁾	International Electrotechnical Vocabulary (IEV) Chapter 161: Electromagnetic compatibility	-	-
IEC 61000-2-2	- ¹⁾	Electromagnetic compatibility (EMC) Part 2-2: Environment - Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems	EN 61000-2-2	2002 ²⁾
IEC 61000-3-2 (mod)	- ¹⁾	Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)	EN 61000-3-2	2000 ²⁾
IEC 61000-4-7	- ¹⁾	Part 4-7: Testing and measurement techniques - General guide on harmonics and interharmonics measurements and instrumentation, for power supply systems and equipment connected thereto	EN 61000-4-7	1993 ²⁾

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC**

61000-4-13

Première édition
First edition
2002-03

PUBLICATION FONDAMENTALE EN CEM
BASIC EMC PUBLICATION

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**

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**



Numéro de référence
Reference number
CEI/IEC 61000-4-13:2002

CONTENTS

FOREWORD.....	5
INTRODUCTION	9
1 Scope and object.....	11
2 Normative references.....	11
3 Definitions	13
4 General	15
4.1 Description of the phenomenon.....	15
4.2 Sources.....	15
5 Test levels.....	17
5.1 Harmonics test levels.....	17
5.2 Test levels for interharmonics and mains signalling.....	21
6 Test instrumentation	23
6.1 Test generator.....	23
6.2 Verification of the characteristics of the generator.....	27
7 Test set up	27
8 Test procedures.....	29
8.1 Test procedure	29
8.2 Application of the test	29
9 Evaluation of test results.....	41
10 Test report.....	41
Annex A (informative) Impedance network between voltage source and EUT	49
Annex B (informative) Resonance point.....	51
Annex C (informative) Electromagnetic environment classes	53
Bibliography	55

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61000-4-13 has been prepared by subcommittee 77A: Low frequency phenomena, of IEC technical committee 77: Electromagnetic compatibility.

This standard has the status of a basic EMC publication in accordance with IEC Guide 107.

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

FDIS	Report on voting
77A/368/FDIS	77A/377/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

Annexes A, B, and C, are for information only.