

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

**Electromagnetic compatibility (EMC) –
Part 3-2: Limits – Limits for harmonic current emissions (equipment input
current ≤ 16 A per phase)**

**Compatibilité électromagnétique (CEM) –
Partie 3-2: Limites – Limites pour les émissions de courant harmonique (courant
appelé par les appareils ≤ 16 A par phase)**

WORLDWIDE
PREVIEW

<https://standards.iteh.ai/catalog/standards/iec/3c273c71-cc59-40be-bad8-7593efe2b32b/iec-61000-3-2-2005-amd1-2008>





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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:

FDIS	Report on voting
77A/625/FDIS	77A/641/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 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- withdrawn,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.

3 Definitions

Add the following new definitions:

3.21

repeatability of results of measurements

closeness of the agreement between the results of measurements of harmonic currents on the same equipment under test, carried out with the same test system, at the same location, under identical test conditions

[IEV 394-40-38, modified ¹⁾]

3.22

reproducibility of results of measurements

closeness of the agreement between the results of measurements of harmonic currents on the same equipment under test, carried out with different test systems under conditions of measurement intended to be the same in each case

[IEV 394-40-39, modified]

NOTE The test system and test conditions are assumed to fulfil all normative requirements in the standards.

¹⁾ IEC 60050-394:2007, *International Electrotechnical Vocabulary – Part 394: Nuclear instrumentation – Instruments, systems, equipment and detectors*

3.23**variability of results of measurements**

closeness of the agreement between the results of measurements of harmonic currents on different samples of the same type of equipment under test, having no intentional differences, carried out with different test systems under conditions of measurement intended to be the same in each case

NOTE 1 The test system and test conditions are assumed to fulfil all normative requirements in the standards.

NOTE 2 In the context of this standard, the meaning of the terms can be summarized as follows:

Term	Meaning
Repeatability	Same EUT, same test system, same test conditions, repeated tests
Reproducibility	Same EUT, different but normative test systems, different but normative test conditions
Variability	Different EUTs of the same type, having no intentional differences, different but normative test systems, different but normative test conditions

6.2.2 Measurement procedure

Replace, in the penultimate paragraph, 6.2.3.4 by 6.2.3.5.

6.2.3 General requirements

Replace Subclause 6.2.3.1 by the following:

6.2.3.1 Repeatability

The repeatability (see 3.21) of the average value for the individual harmonic currents over the entire test observation period shall be better than $\pm 5\%$ of the applicable limit, when the following conditions are met:

- the same equipment under test (EUT) (not another of the same type, however similar);
- identical test conditions;
- the same test system;
- identical climatic conditions, if relevant.

NOTE This repeatability requirement serves the purpose of defining the necessary observation period, see 6.2.4. It is not intended to serve as a pass/fail criterion for the assessment of compliance with the requirements of this standard.

Insert the following new Subclause 6.2.3.2 and renumber existing Subclauses 6.2.3.2 to 6.2.3.4 as 6.2.3.3 to 6.2.3.5 accordingly:

6.2.3.2 Reproducibility

The reproducibility (see 3.22) of measurements on the same EUT with different test systems cannot be definitively calculated so as to apply to all possible combinations of EUT, harmonics meter and test supply, but can be estimated to be better than $\pm (1\% + 10\text{ mA})$, where the 1% is 1% of the average value of the total input current taken over the entire test observation period. Therefore, differences in results which are less than that value of current are deemed negligible, but in some cases a higher value may occur.

For the avoidance of doubt in such cases, test results, obtained at different locations or on different occasions, that show that all the relevant limits are met shall be accepted as demonstrating compliance, even though the results may differ more than the values for repeatability and reproducibility, given above.

NOTE The variability (see 3.23) of measurements on different EUTs of the same type, having no intentional differences, can be increased by practical component tolerances and other effects, such as possible interactions between the characteristics of the EUT and the measuring instrument or the power supply. The results of these effects cannot be quantified in this standard, for the same reasons as for reproducibility. The second paragraph of 6.2.3.2 also applies in the case of variability.

A regulatory concession in respect of limit values to allow for possible variability is recommended but outside the scope of this standard.

Annex A – Measurement circuit and supply source

In Figures A.1 and A.2 amend Note 1 as follows and add the following Note 3:

NOTE 1 Z_S and Z_M are not specified, but must be sufficiently low for the requirements of Clause A.2 to be met. This is checked by measuring the properties of the supply voltage at the point of connection of the EUT to the measurement equipment. More information can be found in IEC 61000-4-7.

NOTE 3 For some types of equipment, such as single-phase uncontrolled rectifiers, the harmonic amplitudes vary greatly with the supply voltage. To minimize variability, it is recommended to maintain the voltage at the point of connection of the EUT to the measurement equipment to 230 V or 400 V within $\pm 1,0$ V, evaluated over the same 200 ms observation window, used for harmonic assessment.

Annex C – Type test conditions

C.7 Test conditions for vacuum cleaners

Replace in the last line 6.2.3.3 by 6.2.3.4.

C.10 Test conditions for information technology equipment (ITE)

Replace the entire existing text by:

C.10.1 General conditions

ITE (including personal computers) which is marketed without 'factory-fitted options' and without expansion slot capabilities is tested as supplied. ITE, other than personal computers, which is marketed with 'factory-fitted options' or has expansion slots, is tested with additional loads in each expansion slot that result in the maximum power consumption attainable using the "factory-fitted options" specified by the manufacturer.

For the testing of personal computers with up to 3 expansion slots, load cards configured for the maximum permitted power for each expansion slot shall be added to each respective expansion slot. For the testing of personal computers with more than 3 expansion slots, additional load cards shall be installed at the rate of at least one load card for each group of up to 3 additional slots (i.e. for 4, 5 or 6 slots a total of at least 4 load cards shall be added. For 7, 8 or 9 slots a total of at least 5 load cards shall be added, etc.).

Modular equipment, such as hard drive arrays and network servers, are tested in their maximum configuration.

In all configurations, the use of additional load cards shall not cause the total DC output power available to be exceeded.

NOTE 1 The above does not mean that multiple options of the same type, such as more than one hard drive, should be fitted, unless that is representative of the user configuration, or the product is of a type (such as Redundant Arrays of Inexpensive Disks (RAID)) for which such a configuration is not abnormal.

NOTE 2 Common load cards for expansion slots such as PCI or PCI-2 are configured for 30 W but may be adjusted as industry standards change.