

TECHNICAL REPORT

AMENDMENT 1

**Electromagnetic compatibility (EMC) -
Part 1-9: General - Evaluation of uncertainty for the measurement of harmonic
current emissions**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**Electromagnetic compatibility (EMC) -
Part 1-9: General - Evaluation of uncertainty for
the measurement of harmonic current emissions****AMENDMENT 1****FOREWORD**

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Amendment 1 to IEC TR 61000-1-9:2024 has been prepared by subcommittee 77A: EMC – Low frequency phenomena, of IEC technical committee 77: Electromagnetic compatibility.

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

Draft	Report on voting
77A/1281/DTR	77A/1287/RVDTR

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

The language used for the development of this Amendment is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications/.

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- reconfirmed,
- withdrawn, or
- revised.

2 Normative references

Replace IEC 61000-3-12 with the following:

IEC 61000-3-12:2011, *Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤ 75 A per phase*
IEC 61000-3-12:2011/AMD1:2021

Replace IEC Guide 115 with the following:

IEC GUIDE 115:2023, *Application of uncertainty of measurement to conformity assessment activities in the electrotechnical sector*

4 Uncertainty evaluation for harmonic emissions tests in IEC 61000-3-2 and IEC 61000-3-12

4.1 Methodology

Replace, in the third paragraph, the first dashed item with the following:

- measurement equipment introduces maximum permissible errors, as specified in IEC 61000-4-7, IEC 61000-3-2 and IEC 61000-3-12;

4.3.3 Input impedance of the current measurement equipment

Add, at the end of the subclause, the following:

For equipment with input current > 16 A and ≤ 75 A per phase, within the scope of IEC 61000-3-12, this component of uncertainty is replaced by the uncertainty due to system impedance. See Annex B.

5.3 Input impedance of the measurement equipment

Add, at the end of the subclause, the following:

For equipment with input current > 16 A and ≤ 75 A per phase, where IEC 61000-3-12 is applicable, this component of uncertainty is replaced by the uncertainty due to system impedance:

As a percentage of the harmonic current limit:

$$U(\delta_{\text{syst imp}}) = \frac{1}{R_{\text{sce}}} \times \frac{I_{\text{h}}}{I_{\text{lim}}} \times 100\% \quad (19)$$

As harmonic current:

$$U(\delta_{\text{syst imp}}) = \frac{1}{R_{\text{sce}}} \times I_{\text{h}} \quad (20)$$

where

R_{sce} is the short-circuit ratio of the EUT (see IEC 61000-3-12:2011, 3.14).

6 Measurement uncertainty supporting conformity decisions

Replace, in the second paragraph, "accuracy method" with "simple acceptance".

Replace the last paragraph with the following:

The values obtained in 4.4, Annex A and Annex B are deemed to be low enough to satisfy the requirement of JCGM 106:2012, 8.2.5, and therefore to adopt IEC Guide 115 Procedure 2 (the simple acceptance principle) for compliance decision rules. Accordingly, the measurement results for current harmonics are considered in conformance with the relevant IEC 61000-3-2 harmonic limits if the measurement values are within the specified limit. Then, in accordance with IEC Guide 115:2023, 4.3.3, measurement uncertainty is not applied when providing statements of conformity.

Add the following new Annex B: