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Part 4-30: Testing and measurement techniques — Power quality measurement methods (IEC 61000-4-30:2015)

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National foreword

This British Standard is the UK implementation of EN 61000-4-30:2015. It is identical to IEC 61000-4-30:2015, incorporating corrigendum December 2016. It supersedes BS EN 61000-4-30:2009, which will be withdrawn on 27 March 2018.

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Foreword

The text of document 77A/873/FDIS, future edition 3 of IEC 61000-4-30, prepared by SC 77A, "EMC - Low-frequency phenomena", of IEC TC 77, "Electromagnetic compatibility" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61000-4-30:2015.

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)	2015-12-27
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2018-03-27

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

IEC 60044-1:1996	NOTE	Harmonized as EN 60044-1:1996.
IEC 60044-2:1997	NOTE	Harmonized as EN 60044-2:1997.
IEC 61000-2-2:2002	NOTE	Harmonized as EN 61000-2-2:2002.
IEC 61000-2-12	NOTE	Harmonized as EN 61000-2-12.
IEC 61000-4-19	NOTE	Harmonized as EN 61000-4-19.
IEC 61010 (Series)	NOTE	Harmonized as EN 61010 (Series).
IEC 61010-2-032	NOTE	Harmonized as EN 61010-2-032.
IEC 61869-1	NOTE	Harmonized as EN 61869-1.
IEC 61869-2	NOTE	Harmonized as EN 61869-2.
CISPR 16-1-1	NOTE	Harmonized as EN 55016-1-1.
CISPR 16-1-2	NOTE	Harmonized as EN 55016-1-2.
CISPR 16-2-1	NOTE	Harmonized as EN 55016-2-1.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60050	series	International Electrotechnical Vocabulary	-	series
IEC 61000-2-4	-	Electromagnetic compatibility (EMC) -- Part 2-4: Environment - Compatibility levels in industrial plants for low-frequency conducted disturbances	EN 61000-2-4	-
IEC 61000-3-8	-	Electromagnetic compatibility (EMC) -- Part 3-8: Limits - Signalling on low-voltage electrical installations - Emission levels, frequency bands and electromagnetic disturbance levels	-	-
IEC 61000-4-7	2002	Electromagnetic compatibility (EMC) -- 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	2002
+A1	2008		+A1	2009
IEC 61000-4-15	2010	Electromagnetic compatibility (EMC) -- Part 4-15: Testing and measurement techniques - Flickermeter - Functional and design specifications	EN 61000-4-15	2011
IEC 61180	series	High-voltage test techniques for low-voltage equipment	EN 61180	series
IEC 62586-1	-	Power quality measurement in power supply systems -- Part 1: Power Quality Instruments (PQI)	EN 62586-1	-
IEC 62586-2	-	Power quality measurement in power supply systems -- Part 2: Functional tests and uncertainty requirements	EN 62586-2	-

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INTRODUCTION

IEC 61000 is published in separate parts according to the following structure:

Part 1: General

General considerations (introduction, fundamental principles)

Definitions, terminology

Part 2: Environment

Description of the environment

Classification of the environment

Compatibility levels

Part 3: Limits

Emission limits

Immunity limits (in so far as they do not fall under the responsibility of the product committees)

Part 4: Testing and measurement techniques

Measurement techniques

Testing techniques

Part 5: Installation and mitigation guidelines

Installation guidelines

Mitigation methods and devices

Part 6: Generic standards

Part 9: Miscellaneous

Each part is further subdivided into several parts, published either as International Standards or as Technical Specifications or Technical Reports, some of which have already been published as sections. Others will be published with the part number followed by a dash and completed by a second number identifying the subdivision (example: 61000-6-1).

ELECTROMAGNETIC COMPATIBILITY (EMC) –

Part 4-30: Testing and measurement techniques – Power quality measurement methods

1 Scope

This part of IEC 61000-4 defines the methods for measurement and interpretation of results for power quality parameters in a.c. power supply systems with a declared fundamental frequency of 50 Hz or 60 Hz.

Measurement methods are described for each relevant parameter in terms that give reliable and repeatable results, regardless of the method's implementation. This standard addresses measurement methods for in-situ measurements.

Measurement of parameters covered by this standard is limited to conducted phenomena in power systems. The power quality parameters considered in this standard are power frequency, magnitude of the supply voltage, flicker, supply voltage dips and swells, voltage interruptions, transient voltages, supply voltage unbalance, voltage harmonics and interharmonics, mains signalling on the supply voltage, rapid voltage changes, and current measurements. Emissions in the 2 kHz to 150 kHz range are considered in Annex C (informative), and over- and underdeviations are considered in Annex D (informative). Depending on the purpose of the measurement, all or a subset of the phenomena on this list may be measured.

NOTE 1 Test methods for verifying compliance with this standard can be found in IEC 62586-2.

NOTE 2 The effects of transducers inserted between the power system and the instrument are acknowledged but not addressed in detail in this standard. Guidance about effects of transducers can be found IEC TR 61869-103.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050 (all parts), *International Electrotechnical Vocabulary (IEV)* (available at www.electropedia.org)

IEC 61000-2-4, *Electromagnetic compatibility (EMC) – Part 2-4: Environment – Compatibility levels in industrial plants for low-frequency conducted disturbances*

IEC 61000-3-8, *Electromagnetic compatibility (EMC) – Part 3: Limits – Section 8: Signalling on low-voltage electrical installations – Emission levels, frequency bands and electromagnetic disturbance levels*

IEC 61000-4-7:2002, *Electromagnetic compatibility (EMC) – Part 4-7: Testing and measurement techniques – General guide on harmonics and interharmonics measurements and instrumentation, for power supply systems and equipment connected thereto*
IEC 61000-4-7:2002/AMD1:2008

IEC 61000-4-15:2010, *Electromagnetic compatibility (EMC) – Part 4-15: Testing and measurement techniques – Flickermeter – Functional and design specifications*