

Domestic equipment standard EN 62233 replaces EN 50366

Global exports easier for manufacturers after harmonization with international standard IEC 62233

No problem with conformance measurements

EN 50366, the European standard for “Household appliances and similar equipment” was published in May 2003 by CENELEC. All EU member states had to incorporate the regulations of this standard into their national standards by February 1, 2004 and to withdraw any standards which differed from it by February 1, 2006. Since then, compliance with EN 50366 has been one of the prerequisites for awarding the CE mark to an appliance and for allowing the appliance to be marketed in countries belonging to the European Community.

In October 2005, the International Electrotechnical Commission IEC published its own standard, IEC 62233 – Ed. 1.0 [1], entitled “Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure”. This standard was based on EN 50366.

The new EN 62233 [2] is effectively a retranslation of IEC 62233. It was adopted by CENELEC on December 1, 2007 and replaces EN 50366:2003 + A1:2006. All EU member states had to implement this European standard by December 1, 2008, by publishing an identical national standard or by formal acceptance. This resulted in the publication in the UK of BS EN 62233 [3], with the same content. Any national standards that conflict with the EN must be withdrawn by December 1, 2012.



*ELT-400, Version
IEC/EN 62233 ICNIRP*

IEC 62233 and EN 62233 – the differences

The two standards are identical as far as the measurement methods are concerned. There are, however, differences in the exposure limit values, which are specified as “Basic limit values and Reference values” in Annex B of each standard. EN 62233 only allows the values specified in Guideline 1999/519/EC [4]. These values are identical to the ICNIRP limit values [5]. In contrast, IEC 62233 provides two sets of basic and reference values, ICNIRP and IEEE [6, 7]. It is the responsibility of the user to apply the values that correspond to their national laws.

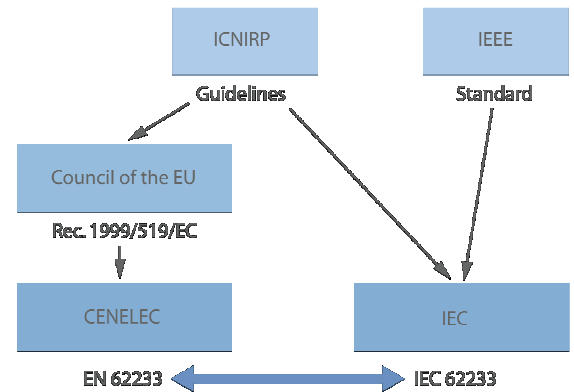
A further distinction within the standards should be noted. Whereas the definitions of the sensors, measurement methods, measurement distances, and test conditions are *normative*, the specification of basic limit values and reference values is *informative* in both the IEC and the EN standards. Those who consider the IEC and the EN to be the same are correct, at least in this aspect. This is because users in European countries are obligated to adhere to the limit values by the EC Guideline, and not by the European standard.

Measuring equipment – the practical solution

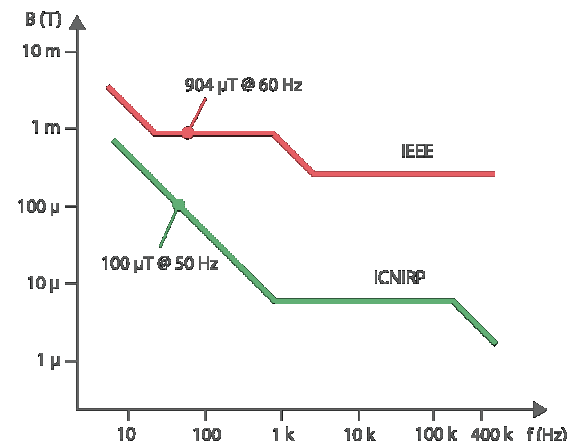
A practical solution can be derived from a comparison of the limit value curves. The ICNIRP limit values are lower than the IEEE limit values over the entire frequency range covered by the standard, i.e. the EN is stricter than the IEC. Anyone measuring according to EN 62233 will also comply absolutely with IEC 62233. Anyone measuring according to IEC 62233 will only comply with EN 62233 if the ICNIRP limit values are applied. It is therefore sensible for manufacturers who want to export their products globally to always use the ICNIRP limit values. A domestic appliance which passes the test will then conform to both EN 62233 and IEC 62233 and can therefore be declared as CE *and* IEEE compliant with regard to electromagnetic fields.

The main advantage of this harmonization is the standardization of the measurement methods. IEC and EN allow both time domain evaluation and spectrum analysis (line spectrum evaluation). In practice, results are obtained faster with time domain evaluation. This method was already adopted as the reference method in EN 50366.

Test equipment that operates correctly according to EN 50366 – e. g. Narda ELT-400 – can therefore continue to be used without restrictions.



Derivation of domestic appliance standards



Magnetic flux density limit value curves according to ICNIRP and IEEE for the frequency range 10 Hz to 400 kHz

Standards and Guidelines

- [1] IEC 62233 – Ed. 1.0 (2005)
Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure
- [2] EN 62233:2008
Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure (IEC 62233:2005, modified)
- [3] BS EN 62233:2008
Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure (EN 62233:2008 Identical, IEC 62233:2005 Modified)
- [4] Council Recommendation of 12 July on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz) (1999/519/EC).
Official Journal of the European Communities L 199/59, 30.7.1999
- [5] ICNIRP Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields (up to 300 GHz).
Health Phys., 1998, vol. 41, no. 4, pp. 449-522
- [6] IEEE C95.6:2002
IEEE Standard for Safety Levels With Respect to Human Exposure to Electromagnetic Fields, 0 - 3 kHz
- [7] IEEE C95.1:2005
IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz

Narda
Safety Test Solutions GmbH
Sandwiesenstrasse 7
72793 Pfullingen, Germany
Phone: +49 (0) 7121-97 32-777
Fax: +49 (0) 7121-97 32-790
E-Mail: support@narda-sts.de
Internet: www.narda-sts.de

Narda
Safety Test Solutions
435 Moreland Road
Hauppauge, NY 11788 USA
Phone: +1 631 231-1700
Fax: +1 631 231-1711
E-Mail: NardaSTS@L-3COM.com
Internet: www.narda-sts.us

Narda
Safety Test Solutions Srl
Via Leonardo da Vinci, 21/23
20090 Segrate (Milano) - ITALY
Phone.: +39 02 269987-1
Fax: +39 02 269987-00
E-Mail: support@narda-sts.it
Internet: www.narda-sts.it