# CENELEC Guide 25

# Guide on the use of standards for the implementation of the EMC Directive to apparatus

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## Foreword

This CENELEC Guide has been prepared by CENELEC Technical Committee TC 210, EMC.

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CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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# INTRODUCTION

The EMC Directive, 2004/108/EC states that a presumption of conformity with the protection requirements (emission and immunity) related to EMC shall exist for all apparatus in conformity with those harmonised standards (ENs) that are identified as relevant by publication of their reference numbers in the Official Journal of the European Union (OJEU). The presumption of conformity is limited to the scope of the harmonised standard(s) applied and the relevant protection requirements covered by the harmonised standard(s).

This third edition of Guide 25 updates the guidance in the light of the application of Directive 2004/108/EC, and updates the references to the standards.

## 1 General principles

Conformity with the harmonised standards listed in the Official Journal (OJEU) of the European Union (generic and product standards i.e. product-family or dedicated product standards) provides a presumption of conformity with the protection requirements of EMC Directive 2004/108/EC (covering emission and immunity). Harmonised standards are thus designed to satisfy the protection requirements of the EMC Directive.

The complete list of harmonised standards published in OJEU under the EMC-directive may be found on the following website of the European Commission:

http://ec.europa.eu/enterprise/electr_equipment/emc/stand.htm

Standards may be used to demonstrate compliance with all the protection requirements (this means, if applicable, low-frequency as well as high-frequency phenomena, emission as well as immunity) or may be used to cover them only in part. Where harmonised standards are not applied, or are not applied in full, the technical documentation required by Annex II of the Directive must include an electromagnetic compatibility assessment of the apparatus, on the basis of the relevant phenomena, for those aspects not covered by the parts of the harmonised standards applied (if any).

The simplest route to compliance is for a manufacturer to use standards that cover the whole of the EMC protection requirements of the Directive, in which case the manufacturer has to apply all the normative EMC requirements of those standards listed in the OJEU whose scopes are applicable to the individual product.

In the absence of appropriate product standards i.e. product-family or dedicated product standards in the OJEU list, the generic standards shall be applied to show compliance.

When showing compliance through standards it is often necessary to comply with more than one standard. This is because some EMC standards do not cover the whole EMC domain covered by the EMC Directive. They may concern only immunity (e.g. EN 61547) high-frequency emission (e.g. EN 55014-1, EN 55011, EN 55015, etc.) or low frequency emission phenomena (e.g. EN 61000-3-2, EN 61000-3-3).

When dedicated product standards are listed either for emission or immunity, the directly corresponding product family standards do not normally apply as well, except when referred to in the dedicated standards.

## 2 Application to typical equipment

With a view to helping manufacturers, the following non-exhaustive Table 1 shows, for some examples of typical equipment, those standards to apply to cover the protection requirements of the EMC Directive. All the standards on the horizontal line, corresponding to a category of equipment, must be applied to demonstrate presumption of conformity by application of harmonised standards.

This table reflects only the situation at the date of publication of this CENELEC Guide. It will be updated in subsequent editions of the Guide.

Note that this table is indicative only. The definitive list of standards that are applicable under the EMC Directive is published in the Official Journal of the European Union. The reference to the Commission website where the latest list may be viewed or downloaded as a .pdf file is given in Clause 1 of this Guide. Note that the .pdf file of the relevant OJEU pages is definitive, and the list on the web page is provided for information only, and has no legal validity.

## 3 Criteria for selecting standards

Selecting a particular product standard for application to a given product may sometimes give difficulties.

The following series of six basic principles will help in the selection of appropriate standards:

1) The scopes of the product-family or dedicated product standards govern their applicability to individual products. The scopes of the standards should therefore be considered carefully, with all their implications. In case of doubt (which may still arise with very broad scope definitions in product-family standards) a second principle (see item 2 following) may be useful.

2) It is the intended use and function of the equipment that determines the EMC standards to be applied.

   EXAMPLE:

   A washing machine, whatever communication or microprocessor modules are used in it, remains basically classified as household equipment for the application of standards and therefore EN 55014-1 and EN 55014-2 apply.

3) Particular interface modules in well-defined equipment (e.g. washing machines) may have to comply with additional requirements that are not included in the normally applicable product-family standard for the complete product. In this case, the interface module (separated or not from the complete apparatus) shall comply with additional requirements for the port corresponding to the interface module only.

   NOTE It may be advisable to include at a later stage requirements for connection ports to public and/or private telecommunication lines in both generic and product (family) standards. This would make the problem easier by avoiding the need to resort to additional standards.

4) The scopes of EN 55011, EN 55013, EN 55014, EN 55015 and EN 55022, for radio-interference emission limitation, are in general mutually exclusive. This means that only one of them has to be selected for given **single function** equipment to comply with the protection requirements of the EMC Directive.

5) Despite these general principles, borderline problems may still occur that are difficult to solve. For multifunction apparatus, it may be necessary to comply with more than one standard for emission and/or immunity. See Annex D for further information.

6) EN 61000-3-2 and EN 61000-3-3 are published in the OJEU as product family standards, and apply in their own right to all products in the scope of these standards.

It is intended that generic and product (- family) standards should make reference to the basic standards without repeating their detailed contents. Basic standards do not contain requirements and therefore a declaration of conformity of products with the basic standards has no significance. Thus basic standards are not included in the list of harmonised standards published in the Official Journal of the European Union (OJEU). This OJEU list will indeed include only those standards permitting the direct presumption of conformity of products with Directive 2004/108/EC.

Alternative test and measurement methods, when introduced into a harmonised standard for the same purpose are considered, together with their associated limits, as equivalent regarding the provision of a presumption of conformity with the protection requirements.

**Table 1**
**(Non-exhaustive table)**

| **Families of products** | **Standards covering the protection EMC requirements** | | | |
|---|---|---|---|---|
| | **Emission** | | | **Immunity** |
| | **Harmonics** (see Note 1) | **Voltage fluctuations** (see Note 1) | **Radio-interference** | **(All aspects)** |
| Household appliances and portable tools (motor-driven such as vacuum cleaners, washing machines etc; heating and cooking appliances, etc.) | EN 61000-3-2 or EN 61000-3-12 | EN 61000-3-3 or EN 61000-3-11 | EN 55014-1 (2) | EN 55014-2 |
| Lighting equipment | EN 61000-3-2 or EN 61000-3-12 | EN 61000-3-3 or EN 61000-3-11 | EN 55015 (8) | EN 61547 |
| TV receivers and audio equipment | EN 61000-3-2 or EN 61000-3-12 | EN 61000-3-3 or EN 61000-3-11 | EN 55013 | EN 55020 |
| Professional audio, video and entertainment lighting control equipment | EN 55103-1 (refers to EN 61000-3-2) | EN 55103-1 (refers to EN 61000-3-3) | EN 55103-1 | EN 55103-2 |
| Information Technology (IT) equipment | EN 61000-3-2 or EN 61000-3-12 | EN 61000-3-3 or EN 61000-3-11 | EN 55022 | EN 55024 |
| Mains signalling equipment (7) | - | - | EN 50065-1 | EN 50065-2-1<br>EN 50065-2-2<br>EN 50065-2-3 |
| ISM equipment | EN 61000-3-2 or EN 61000-3-12 | EN 61000-3-3 or EN 61000-3-11 | EN 55011 | EN 61000-6-2 |
| Industrial equipment in general | - (3) | - (3) | EN 61000-6-4 | EN 61000-6-2 |
| Static watt-hour meters (Classes 1 and 2) | - | - | EN 61036 | EN 61036 |
| Static watt-hour meters (Classes 0,2 S and 0,5 S) | - | - | EN 60687 | EN 60687 |
| Electronic ripple control receivers | - | - | EN 61037 | EN 61037 |
| Time switches for tariff and load control | - | - | EN 61038 | EN 61038 |
| Marine navigational equipment | - | - | EN 60945 | EN 60945 |
| Automatic electrical controls for household and similar use (6) | EN 61000-3-2 or EN 61000-3-12 | EN 61000-3-3 or EN 61000-3-11 | EN 60730-1 and -x (4) | EN 60730-1 and –x (4) |
| Household electronic switches for fixed installations (6) | EN 60669-2-1 (refers to EN 61000-3-2) | EN 60669-2-1 (refers to EN 61000-3-3) | EN 60669-2-1 | EN 60669-2-1 |
| Induction watt-hour meters | - | - | - | EN 60521 |
| Programmable controllers (industry) | - | - | EN 61000-6-4 | EN 61131-2 |
| Low-voltage switchgear and controlgear (6) | - | - | EN 60947-1 and-x (5) | EN 60947-1 and-x (5) |
| Alarm systems | EN 61000-3-2 or EN 61000-3-12 | EN 61000-3-3 or EN 61000-3-11 | EN 61000-6-3 | EN 50130-4 |

| **Families of products** | **Standards covering the protection EMC requirements** | | | |
|---|---|---|---|---|
| | **Emission** | | | **Immunity** |
| | **Harmonics** (see Note 1) | **Voltage fluctuations** (see Note 1) | **Radio-interference** | **(All aspects)** |
| Uninterruptible power systems (UPS) | EN 62040-2 | EN 62040-2 | EN 62040-2 or EN 50091-2 (9) | EN 62040-2 or EN 50091-2 (9) |
| Arc welding equipment | EN 60974-10 | EN 60974-10 | EN 60974-10 | EN 60974-10 |
| Residual current operated protective devices for household use | - | - | EN 61543 | EN 61543 |
| Adjustable speed power drives | EN 61800-3 (refers. to EN 61000-3-2) (3) | EN 61800-3 (refers to EN 61000-3-3) (3) | EN 61800-3 | EN 61800-3 |
| Equipment for measurement, control and laboratory use | EN 61326-1 and specific parts as appropriate | EN 61326-1 and specific parts as appropriate | EN 61326-1 and specific parts as appropriate | EN 61326-1 and specific parts as appropriate |
| Radio-communication equipment and telecommunication network equipment | EN 61000-3-2 or EN 61000-3-12 | EN 61000-3-3 or EN 61000-3-11 | See ETSI relevant standards | See ETSI relevant standards |

**NOTES to Table 1:**

General note:

A dash (**-**) indicated in Columns 2 to 4 means either that the relevant family of products is, with our present knowledge, not concerned with the phenomenon, or that the standards do not presently include any requirements.

It does not preclude that equipment should be designed to meet the normal EMC environment including EMC compatibility levels on the supply system.

Particular notes:

(1) Only for equipment intended for connection to LV public supply.

(2) For microwave ovens and other appliances for domestic use designed to use or radiate radio-frequency energy, EN 55011 applies instead of EN 55014-1.

(2) Only for equipment intended for connection to LV public supply.

(3) No limits in standards for equipment connected to private LV networks but installation restrictions by supply authorities may apply (see Annex A).

(4) Relevant dedicated product standards (particular parts) published in the OJEU (series EN 60730-2 to EN 60730-x) apply together with the general part (EN 60730-1).

(5) Relevant dedicated product standards (particular parts) published in the OJEU (series EN 60947-2 to EN 60947-x apply together with the general part (EN 60947-1).

(6) The EMC Directive applies insofar as these products are apparatus or components within the scope of the EMC Directive.

(7) For residential, commercial and light industrial environments, EN 50065-2-1 may be used. For industrial environments, EN 50065-2-2 may be used. For equipment used by electricity suppliers and distributors, EN 50065-2-3 may be used.

(8) Requirements for lighting apparatus in the ISM frequency bands 2,45 GHz and 5,8 GHz are contained in EN 55011. Requirements for all other lighting apparatus are contained in EN 55015.

(9) EN 50091-2 ceased to give a presumption of conformity on 1 October 2008.

## 4 General remarks on the list of EMC harmonised standards

The following remarks are intended to facilitate the use of the lists of harmonised standards published in OJEU.

a) For product standards, for example, EN 60669, EN 60730, EN 60945, EN 61036, EN 61037 and EN 61038, which include requirements other than EMC, only the EMC clauses for emission and immunity apply within the framework of the EMC Directive.

b) When new editions or revised (amended) standards are published in the OJEU, the consolidated list of published standards indicates the date of cessation of presumption of conformity *doc* (with the EMC Directive) of the superseded standards. This date is, in most cases, the same as the date of withdrawal of the superseded standard *dow* indicated by the standardisation body in the revised standard, but it may be different in exceptional cases.

c) Products placed on the market in the European Economic Area (EEA) between the date of listing of the new standards in the OJEU and the date of cessation of presumption of conformity of the standard being superseded, may comply with *either* the superseded standard *or* the newly listed standard.

d) From the date of cessation of conformity of the superseded standard, all products placed on the market (including continuous manufacture of individual product types first placed on the market before this date) shall comply with the requirements of the newly listed standard.

e) *If the newly listed standard has a narrower scope than the superseded standard:*

From the date of cessation of conformity, products within the scope of the newly listed standard shall comply with that standard. The “superseded” standard is only partly superseded in the sense that it remains valid for products within its scope but outside the scope of the newly listed standard.

f) *If the newly listed standard has a broader scope than the superseded standard:*

From the date of cessation of conformity, products within the scope of the newly listed standard shall comply with that standard.

g) *If the newly listed standard has a scope which encompasses products previously not covered by a product or product family standard:*

Up to the date of cessation of conformity, products may comply with the relevant generic standard(s). From the date of cessation of conformity, all products within the scope of the newly listed standard shall comply with that standard.

h) These principles (a-g) are also valid for amendments.

i) In some cases, it may be necessary to apply a product standard containing general rules (general part of a series of standards or sub-standards) in conjunction with a more dedicated particular part (often identified by the same number plus a different suffix number from 2 to x).

When the standard or part containing the general rules is not sufficient to give presumption of conformity with the protection requirements, this particular case is indicated in the OJEU list by a specific note (in addition a dash – is placed in the columns corresponding to the superseded standard and to the date of cessation of conformity of the superseded standard)

The same principle and note are applied when a standard without its amendment is not sufficient to give presumption of conformity.

j) References to other standards in EMC product standards:

See Annex C for additional information.

k) Where a standard contains an Annex ZA (because it is based on an international standard) this annex prevails regarding the use of references.

See Annex C for additional information.

NOTE Users of standards are encouraged to identify outdated references to CENELEC standards via their National Committee.

# Annex A

## Low frequency emission requirements State of the standardisation

(explanatory)

Some information and explanations are given in relation with the state of the standardisation in the case of the low-frequency emission requirements and limits for equipment.

### A.1 Introduction

The development, in the standardisation bodies, of standards and recommendations covering phenomena such as harmonics and voltage fluctuations injected or produced on the power supply by apparatus connected to the power supply systems, concerns power supply authorities, industrial users, installers and manufacturers of equipment.

### A.2 Standardisation situation and evolution

Three different cases must be clearly distinguished in the present situation. They reflect the consensus that has been prevailing for some time when treating the different situations concerning harmonics and voltage fluctuations limitations in the power supply.

a) *Low-power equipment rated at less than 75 A per phase and intended for direct connection to the public low-voltage supply system*

This category covers a broad range of widely used equipment. Limits and/or requirements are specified in harmonised standards for harmonic current injection and for current fluctuations leading to voltage fluctuations.

Conformity with these standards can be evaluated at the manufacturing stage under well defined conditions. This is of major importance for the manufacturer, since equipment that is in conformity with harmonised standards is presumed to comply with the protection requirements of the EMC Directive.

The harmonised standards EN 61000-3-2 and EN 61000-3-3 (and EN 61000-3-11 in some cases) cover all equipment with equal to or less than 16 A rating and intended for direct connection to public low-voltage supply systems.

It should be noted that in EN 61000-3-2, limits for professional equipment above 1 000 W are not given. For such equipment, no limits will therefore be applicable until an amendment to the existing EN 61000-3-2 is adopted with the corresponding implementation dates for this amendment.

EN 61000-3-11 covers requirements for the limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems for equipment with a rated current not greater than 75 A and which is subject to conditional connection (as defined in the standard).

EN 61000-3-12 covers requirements for the limitation of harmonics for equipment rated between 16 A and 75 A per phase.

b) *Equipment with rated current above 75 A and intended for direct connection to the public supply systems*

Above 75 A, it is considered improbable that harmonised standards would be prepared in the future and only guidelines or Technical Reports are likely be issued by the standardisation bodies. These documents will be used by agreement between supply authorities and their direct customers.

c) *Equipment intended for connection to the public medium voltage (or high voltage) supply (industrial loads)*

For such equipment, it has appeared impossible to define limits independent of the final location of the equipment in a reasonable manner. If limits in the strict sense were to be defined, it is expected that they would refer to installations (and thus be location dependent) and not refer to equipment at the manufacturing stage.

Detailed published Technical Reports from IEC SC 77A, IEC 61000-3-6 and IEC 61000-3-7, are available for the emission of harmonics and voltage fluctuations caused by industrial loads connected at medium or high voltage level to the public network.

The basic approach used in these documents is that of flexible guidelines in several stages intended for use by supply authorities, installers and users of equipment during their negotiations to reach a common and co-ordinated solution.

No requirements are applicable to give presumption of conformity to the EMC Directive for such equipment as there are no harmonised standards.

### A.3 Generic standards

Although only the generic emission standards for the residential, commercial and light industrial environments endorse the requirements and limits of the harmonics and flicker standards, in practice EN 61000-3-2 , EN 61000-3-3, EN 61000-3-11 and EN 61000-3-12 apply to all products within their scope, as they are listed as harmonised standards in OJEU.

# Annex B

## Definitions and abbreviations

The following definitions and abbreviations are from the CEN/CENELEC Internal Regulations Part 2:2008, except for the definition of “harmonised standard”, which is used in the sense of the EMC Directive.

**B.1**
**harmonization (of national standards)**
prevention or elimination of differences in the technical content of standards having the same scope, particularly those differences that may cause hindrances to trade.

NOTE Harmonization of these standards is considered to be achieved when the products manufactured to the national standards of one country may be regarded as being complying, without modification, with the standards of the other countries and vice versa.

**B.2**
**harmonised standard** (in the sense of the EMC-directive)
European standard published in OJEU supporting the presumption of conformity with the protection requirements of the EMC Directive

**B.3**
**European Standard (EN)**
standard adopted by CEN/CENELEC and carrying with it an obligation of implementation as an identical national standard and withdrawal of conflicting national standards

**B.4**
**national deviation**
modification of, addition to or deletion from the content of an EN (and HD for CENELEC) made in a national standard within the same scope as the EN (and HD for CENELEC).

NOTE It does not form part of the EN (and HD for CENELEC).

**B.5**
**A-deviation**
national deviation from an EN (and HD for CENELEC) due to regulations the alteration of which is for the time being outside the competence of the CEN/CENELEC national member.

NOTE Where standards fall under EC Directives, it is the view of the Commission of the European Union (OJ No C 59, 1982-03-09) that the effect of the decision of the Court of Justice in Case 815/79 Cremonini/Vrankovich (European Court Reports 1980, p. 3583) is that compliance with A-deviations is no longer mandatory and that the free movement of products complying with such a standard should not be restricted within the EC except under the safeguard procedure provided for in the relevant Directive.

**B.6**
**B-deviation**
national deviation from an HD due to particular technical requirements, permitted for a specified transitional period

**B.7**
**date of ratification (dor)**
date when the Technical Board notes the approval of an EN (and HD for CENELEC), from which time the standard may be said to be approved.

**B.8**
**date of availability (dav)**
date when the definitive text in the official language versions of an approved CEN/CENELEC publication is distributed by the Management Centre

**B.9**
**date of announcement (doa)**
latest date by which the existence of an EN (and HD for CENELEC), a TS or a CWA has to be announced at national level

**B.10**
**date of publication (dop)**
latest date by which an EN has to be implemented at national level by publication of an identical national standard or by endorsement

**B.11**
**date of withdrawal (dow)**
latest date by which national standards conflicting with an EN (and HD for CENELEC) have to be withdrawn

**B.12**
**amendment**
ratified supplementary document to an EN (and HD for CENELEC) already circulated to CEN/CENELEC national members for national implementation, to be read in conjunction with that EN (and HD for CENELEC) and which alters and/or adds to previously agreed technical provisions in that EN (and HD for CENELEC).

**B.13**
**corrigendum**
supplementary document to one, two or all three versions of a CEN/CENELEC publication, which corrects one or more errors or ambiguities inadvertently introduced in either drafting or printing and which could lead to incorrect or unsafe application of those versions

**B.14**
**Technical Report**
document adopted by CEN/CENELEC containing informative material not suitable to be published as a European Standard or a Technical Specification

# Annex C

## Additional information on references to other standards in EMC standards

Practically all EMC harmonised standards make reference to the basic standards for the test and measurement methods to be applied.

A number of standards listed in the OJEU specify also some requirements (limits) by reference to other standards (for example, by stating “the requirements of EN 55022, class A apply”).

*This last case is only admitted when the referred standard is also a harmonised standard published in OJEU under the EMC directive.*

### C.1 Prevailing references

References to other standards are sometimes indicated in several places in a standard. Where the standard is an EN version of an international standard, Annex ZA is included to show the references to ENs that must be applied.

The precise references to the EN edition(s) of the standard(s) indicated in the right hand columns of normative Annex ZA prevail over those references indicated in any other part of the standard to determine the dated or undated character of the referred standard, and where applicable, the specific date of the standard and its amendments, if any.

In standards developed only by CENELEC, the indications given in the clause ‘Normative references” prevail to define the dated or undated character of a referred standard.

NOTE One possible exception to this general rule can arise in case of a very specific dated reference to a specific clause, paragraph or table of a referred standard in the clauses of a standard.

Where dated references are employed, product committees are expected to perform a review of these references as part of the reviewing process for their standards.

In some cases, a harmonised standard will make reference by dated reference to another harmonised standard, each standard being listed in the OJEU for the EMC Directive. In such cases, the specific edition of the referenced EN is to be applied irrespective of whether that edition is currently listed in the OJEU. This follows the principle that the primary standard provides the requirements for the apparatus, and hence presumption of conformity in respect of the EMC Directive as described in Annex ZZ of that standard (see Annex E of this Guide). See also C.2 e) below for the specific example where the standards are based on international versions.

## C.2 Additional information on procedures used in CENELEC when international standards (mostly IEC standards) are endorsed as ENs

a) When there is no CENELEC directly corresponding edition of a referenced international standard, this international standard (e.g. from IEC) is quoted unchanged in Annex ZA, without a CENELEC counterpart on the right side.

**Remark**: That IEC document is dated or undated according to IEC choice. In this case, the IEC referenced document has to be used.

b) When there is a directly corresponding edition of CENELEC EN to the referred international standard and that international reference is dated, the Annex ZA gives the indication of the corresponding CENELEC document (mostly EN) with its date that must be used in place of the international reference.

**Remark**: In this case, the dated edition of CENELEC EN applies (modified or not according to the case).

c) When there is a directly corresponding edition of CENELEC (mostly EN) to the international standard and that international reference is undated, the Annex ZA gives the indication of the corresponding CENELEC document (mostly EN) with its date.

**Important remark: In this last case, the undated international reference becomes de facto dated for European use. This general policy prevents the automatic change over to a future unknown referenced standard when using the standard.** Deviations from this last general rule are only possible on special request of the responsible Technical Committee.

d) In some Annexes ZA, the year of the EN that has to be used is accompanied by a note indicating “valid edition at date of issue”. This remark provides information about the process the technical committee adopted in the selection of the reference standard and does not change the requirement that the specific edition (date) of the EN (and amendments if shown) in the right hand columns is to be used.

e) In some cases, a harmonised standard (described as the “primary” standard below) may give a dated reference to another harmonised standard (for example EN 61000-6-3:2007 makes reference to EN 55022:2006 for test methods). It will be appreciated that the referenced standard is listed in the OJEU in its own right, and the question arises as to whether the dated reference, or the date of cessation of presumption of conformity given in the OJEU list, should prevail.

The principle to be followed is that the dates given in Annex ZA of the primary product/product family/generic standard prevail. The committee responsible for the primary harmonised standard sets the total requirements, and this includes the specific editions of referenced standards to be used.

The principle of the application of dated references is the same whether the referenced standard is a basic standard or a product family standard.

# Annex D

## Multifunction equipment

Multifunctional equipment can be considered as equipment that has a number of primary functions, or whose inherent operation is covered by more than one standard.

Multifunctional equipment should be operated in its normal mode of operation, if two or more functions are capable of operating simultaneously under normal operation, then tests must be conducted with these functions operating simultaneously.

For multifunctional equipment where functions work in isolation under normal operation, these functions can be tested in isolation. However, equipment that has isolated functions, which can be configured to operate simultaneously during testing, then this is acceptable to operate them simultaneously.

In any event, all clauses of the relevant standards must be applied. Where limits cover the same frequency range or phenomena the most stringent limits should be applied for emission and immunity. If the same test is covered by more than one standard then this test only needs to be performed once provide all relevant operations are functional over the test period.

Additionally, all functions may be tested separately provided that the cumulative test data (i.e. adding up emission results etc.) ensures the overall product complies with the most stringent test limits for emissions and immunity.

Where there is any conflict between the requirement in this annex, and a standard that applies to the equipment, the standard takes precedence.

# Annex E

## Annexes ZZ

Harmonised standards must contain an Annex ZZ indicating the relevant aspects of new approach directives that are covered by the standard. EMC standards generally fall into three categories: emission only, immunity only, and both emission and immunity.

The following texts are provided as templates for inclusion by product committees. Deviations should only be made with the agreement of TC 210 and CENELEC MC since the text must be in conformity with Mandate M/404. This mandate requires that all references to 89/336/EEC shall be changed to references to 2004/108/EC, and Annexes ZZ be provided in standards where they do not currently exist, within five years of the publication of the mandate in March 2007. It is not necessary to update standards in the meantime to include this change until an amendment or new edition is being produced.

Product committees should review their standards as the deadline for the mandate approaches.

The text for particular circumstances follows.

**For emission only**

This example includes a reference also to the R&TTE Directive 1999/5/EC, which should be removed where not relevant.

**Annex ZZ**
(informative)

**Coverage of Essential Requirements of EC Directives**

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers protection requirements of Annex I, Article 1(a) of the EC Directive 2004/108/EC, and essential requirements of Article 3.1(b) (emission only) of the EC Directive 1999/5/EC.

Compliance with this standard provides presumption of conformity with the specified essential requirements of the Directive[s] concerned.

NOTE Other requirements and other EC Directives may be applicable to the products falling within the scope of this standard.

**For immunity only**

This example includes a reference also to the R&TTE Directive 1999/5/EC, which should be removed where not relevant.

**Annex ZZ**
(informative)

**Coverage of Essential Requirements of EC Directives**

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers protection requirements Annex I, Article 1(b) of the EC Directive 2004/108/EC, and essential requirements of Article 3.1(b) (immunity only) of the EC Directive 1999/5/EC.

Compliance with this standard provides presumption of conformity with the specified essential requirements of the Directive[s] concerned.

NOTE Other requirements and other EC Directives may be applicable to the products falling within the scope of this standard.

**For both emission and immunity**

This example includes a reference also to the R&TTE Directive 1999/5/EC, which should be removed where not relevant.

**Annex ZZ**
(informative)

**Coverage of Essential Requirements of EC Directives**

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers protection requirements of Annex I, Article 1 of the EC Directive 2004/108/EC, and essential requirements of Article 3.1(b) of the EC Directive 1999/5/EC.

Compliance with this standard provides presumption of conformity with the specified essential requirements of the Directive[s] concerned.

NOTE Other requirements and other EC Directives may be applicable to the products falling within the scope of this standard.