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Smernice produktnim tehničnim odborom za pripravo standardov v zvezi z izpostavljenostjo ljudi elektromagnetnim sevanjem

Guidelines for product committees on the preparation of standards related to human exposure from electromagnetic fields

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English version

Guidelines for product committees on the preparation of standards related to human exposure from electromagnetic fields

Leitfaden für Produktkomitees
zur Ausarbeitung von Normen
in Bezug auf die Sicherheit von Personen
in elektromagnetischen Feldern

This Technical Report was approved by CENELEC on 2004-09-04.

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

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This Technical Report was prepared by the Technical Committee CENELEC TC 106X, Electromagnetic fields in the human environment.

The text of the draft was submitted to the vote and was approved by CENELEC as CLC/TR 50442 on 2004-09-04.

This Technical Report supersedes R106-001:2002.

This report has been accepted by ETSI and CEN as the basis for the development of electromagnetic fields (EMF) standards.

Contents

Introduction

The Council of the European Communities has adopted the Council Directive 73/23/EEC of 19 February 1973 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits, OJ L 77, 26.3.1973 and Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity, OJ L 91, 7.4.1999 including limitation of exposure from electromagnetic fields. The Directives cover the whole frequency range.

The European Commission has given CENELEC, CEN and ETSI the task of preparing the necessary standards for the implementation of these directives under the mandate M/305 and with reference to the Council Recommendation 1999/519/EC.

The above-mentioned standards are necessary to enable the presumption of conformity to the protection requirements of the LV and RTTE Directives. Conformance to the appropriate standards will facilitate the free movement of apparatus placed on the market within the European Union (EU).

1 Purpose

The purpose of this report is to

– give advice on the application of the basic and generic EMF standards,

– give advice on the preparation of product i.e. product-family or dedicated product EMF standards.

It should be noted that certification [1)] aspects are not considered in this report.

This report is primarily intended for product-orientated committees preparing EMF standards.

2 Organisation and characteristics of EMF standards

To fulfil the tasks related to meeting the requirements of the LV and RTTE Directives, it is essential to be able to distinguish between the following six types of EMF standards:

a) basic standards;

b) generic standards;

c) product-family standards;

d) dedicated product standards;

e) product standard when put into service;

f) in situ standard.

In addition to the above types of standards, there is a need for a further category of documents including reports, guidance documents, codes of practice, etc. The following sub-clauses define (as precisely as practicable) the characteristics of these different types of standards.

[1)] Certification (of conformity) is the action by a third party demonstrating that adequate confidence is provided that a duly identified product, process or service is in conformity with a standard or with other normative documents.

Table 1 gives an overview of the characteristics of the different types of standards.

Measurement uncertainties play a significant role in the assessment of EMF exposure and all types of standards should take uncertainty into consideration, e.g. by giving maximum allowed uncertainty.

Measurement uncertainties should be treated in line with the ISO "Guide to the expression of uncertainty in measurement". According to the common practice in EMC standards, the expanded uncertainty shall be evaluated using a confidence interval of 95 %.

2.1 Basic EMF standards

Two types of basic EMF standards have been identified:

– those for measurements and calculation;

– those related to other aspects.

Basic standards for measurements and calculation are of particular importance in connection with generic and product standards for conformity assessment purposes.

a) Basic standards for measurements and calculations

Contents

Basic EMF standards give detailed measurement and/or calculation methods, test instrumentation and basic test set-up to be implemented for the evaluation of physical quantities relevant to demonstrate the compliance to the basic restrictions and/or the reference levels defined in the European Recommendation 1999/519/EC.

Ranges of assessment criteria may be given with respect to the characteristics of measuring equipment or measurement methods.

These standards shall not include prescribed limits and shall not contain compliance criteria (not even general-purpose compliance criteria).

Aims and use

These standards constitute the foundation of EMF-standardisation by defining the detailed measurement and calculation methods.

b) Other types of basic standards and documents

Other types of EMF standards and publications relating to other aspects may be identified as “basic”, in as much as they describe the fundamental elements of EMF. For example, they may concern:

– working practice;

– guidelines / guides;

– background (textbook) material.

2.2 Generic EMF standards

Contents

Generic EMF standards give reference to limits for basic restrictions and/or reference levels in accordance with the values provided in the Council recommendation 1999/519/EC, general assessment methods (measurement and/or calculations) and compliance assessment criteria applicable to all products covered by the RTTE and LV Directives.

It is intended that generic standards should not include detailed measurement and calculation methods or test instrumentation but should for that purpose refer to the basic standards. Generic standards may, when necessary, contain additional information (e.g. choice of only one method where several are included in a basic standard).

Generic standards also include compliance criteria of general application.

Aims and use

The generic standards should be used when no corresponding product standards exist or are deemed necessary. Compliance with the normative part of these generic standards assures formal conformity of products with the essential requirements of the LV and RTTE Directives.

In addition, generic standards play an essential role in the coordination of product standards.

2.3 Product EMF standards

2.3.1 Product-family EMF standards [2)]

Contents

The scopes of such standards indicate the particular product-family concerned; these may be broad or narrow.

Product-family standards give reference to basic restrictions and/or reference levels in accordance with the values provided in the Council recommendation 1999/519/EC, assessment methods (measurement and/or calculations) and compliance assessment criteria for the products within their scopes. Product-family standards may define specific EMF requirements in the form of emission limits when it can be validated that compliance with the required limit will result in compliance with the requirements stated in the Council recommendation. Product family standards should precisely specify the assessment methods to be used for the products within their scopes.

It is intended that:

– product-family standards should not normally include detailed assessment and measurement methods in itself, but give reference to basic standards. In exceptional and justified cases, specific assessment methods or deviations from the methods in the basic standards may be necessary;

– product-family standards include all necessary additional information for the reproducible assessment of those products;

[2)] A product-family standard covers products with differing detailed functions, but having some common general characteristics. The borderline with dedicated products may sometimes be imprecise as families may be very broad or narrow.

– the assessment and compliance criteria in product-family standards should be co-ordinated with those in the generic standards. Where deviations are necessary, they shall be fully justified [3] and the rationale shall be indicated, preferably within the product-family standards;

– product-family standards include more specific and detailed compliance criteria than generic standards.

NOTE Product-family standards are most often within the scope of a specific technical committee.

Aims and use

For assessment of compliance with the LV and RTTE Directives, product-family standards take precedence over generic standards, either partially or totally according to the EMF domains covered.

It is recommended that an EMF product-family standard forms a separate publication, except when EMF requirements are of such a simple nature that they may be introduced in a product-family standard covering the performance characteristics. In this case the EMF clauses shall be clearly separated and identified.

In safety standards EMF clauses not directly related to safety should preferably not be included.

2.3.2 Dedicated product EMF standards

The same criteria as defined for product-family standards apply. EMF clauses within these general purpose standards shall be separated and shall be clearly identified. However, having separate EMF standards is preferable.

When a particular product is covered by a product-family standard, the preparation of a dedicated product standard is seldom justified. Deviations from the specified assessment methods and compliance criteria will be allowed only in exceptional cases. CENELEC TC 106X in its coordinating role will consider any proposed deviations.

Product specific functional characteristics have to be taken into consideration when determining the product's requirements. Dedicated product EMF standards or clauses shall give precise compliance criteria.

These product standards are therefore in some cases justifiably different from product-family and generic standards, but should, however, remain coordinated with them.

2.3.3 Product standard when put into service

The object of this type of standard is to verify that such product complies with the basic restrictions directly or via compliance with reference levels related to the general public exposure to radio frequency electromagnetic fields, when it is put into service in its operational environment.

2.4 In situ standard

The object of this type of standard is to assess EMF at a location. The content in this type of standard is similar to basic standards. The standard may cover parts of frequency ranges or all frequencies. The standard may cover only some sources or all sources producing EMF.

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[3] CENELEC TC 106X in its overall EMF co-ordinating role should be given the opportunity to comment on the proposed justification prior to the finalisation of the standard. These product family standards shall be brought before TC 106X for co-ordination.