

**GUIDELINES ON THE APPLICATION OF  
DIRECTIVE 2006/95/EC**

**(ELECTRICAL EQUIPMENT DESIGNED FOR USE WITHIN CERTAIN  
VOLTAGE LIMITS)**

August 2007



Dear User,

The provisions of the Low Voltage Directive (LVD) 2006/95/EC have been in force for thirty years and have been pivotal in promoting the Single Market for electrical equipment in Europe and assuring that citizens are provided with a high level of protection.

I am therefore very pleased to have been asked to introduce this third edition of the LVD Guidelines, which seeks to provide a “user friendly” reference to issues regarding the Directive. The fact that it is not greatly different from previous editions shows that consensus has been relatively easily achieved in this sector and there exists a stability of understanding as to how the Directive needs to be applied in practical terms. The main purpose of the amendments is to deal with the codification of the previous Directive 73/23/EEC and the interface with the “new” Machinery Directive 2006/42/EC. It highlights the editorial corrigendum<sup>1</sup> to Directive 93/68/EC, that clarifies Article 10 (1) regarding the placing of the CE marking and also touches upon the interface with the General Product Safety Directive 2001/95/EC, reflecting guidance issued by DG SANCO.

Whilst stakeholders should note that this text is not legally binding in the sense of legal acts in the Community, it does provide a very good insight into the views of those stakeholders – representatives from the member states, industry, users, standardisation and notified bodies – who were involved in its development.

Any further suggestions on the content of the guidelines are most welcome. The electronic version including other language versions may be downloaded from the website: [http://europa.eu.int/comm/enterprise/electr\\_equipment/lv/guides/index.htm](http://europa.eu.int/comm/enterprise/electr_equipment/lv/guides/index.htm).

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<sup>1</sup> See corrigendum in OJ L299/32 of 28.10.2006

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## Hyperlinks

Text of the Low Voltage Directive 2006/95/EC:

[http://eurlex.europa.eu/LexUriServ/site/en/oj/2006/l\\_374/l\\_37420061227en00100019.pdf](http://eurlex.europa.eu/LexUriServ/site/en/oj/2006/l_374/l_37420061227en00100019.pdf)

Opinions of the European Commission

- surface temperatures of toasters;

[http://ec.europa.eu/enterprise/electr\\_equipment/lv/opinion2000.pdf](http://ec.europa.eu/enterprise/electr_equipment/lv/opinion2000.pdf)

- security of lights and their connecting terminals

[http://ec.europa.eu/enterprise/electr\\_equipment/lv/opinion2001.pdf](http://ec.europa.eu/enterprise/electr_equipment/lv/opinion2001.pdf)

- safety of transportable child appealing luminaires;

[http://ec.europa.eu/enterprise/electr\\_equipment/lv/opinion2002.pdf](http://ec.europa.eu/enterprise/electr_equipment/lv/opinion2002.pdf)

- functional safety of toasters;

[http://ec.europa.eu/enterprise/electr\\_equipment/lv/opiniondec2002\\_en.pdf](http://ec.europa.eu/enterprise/electr_equipment/lv/opiniondec2002_en.pdf)

- safety of cable reels.

[http://ec.europa.eu/enterprise/electr\\_equipment/lv/opinion2003\\_en.pdf](http://ec.europa.eu/enterprise/electr_equipment/lv/opinion2003_en.pdf)

References of national measures transposing directive 2006/95/EC

[http://ec.europa.eu/enterprise/electr\\_equipment/lv/direct/transp.htm](http://ec.europa.eu/enterprise/electr_equipment/lv/direct/transp.htm)

List of LVD Contact Points in charge of implementation

[http://ec.europa.eu/enterprise/electr\\_equipment/lv/lialist.htm](http://ec.europa.eu/enterprise/electr_equipment/lv/lialist.htm)

List of LVD Contact Points in charge of the market surveillance

[http://ec.europa.eu/enterprise/electr\\_equipment/lv/msalist.htm](http://ec.europa.eu/enterprise/electr_equipment/lv/msalist.htm)

Useful addresses

## I. INTRODUCTION

1. These guidelines have been prepared with a view to assist all parties<sup>2</sup> directly or indirectly involved in the application of Directive 2006/95/EC, the "Low Voltage" Directive<sup>3</sup>. They supersede guidance on the application of that Directive which was given in the Commission's communication of 15 December 1981<sup>4</sup> and the "Guidelines on the application of Council Directive 73/23/EEC" of February 2001.

They have been drawn up by European Commission services and discussed with a Working Party of Government Experts, representatives of European industry, consumer protection organisations and European standardisation bodies. These guidelines reflect the consensus views reached between Commission services and representatives of the Member States in the Working Party of 20<sup>th</sup> March 2007.

2. Readers' attention is drawn to the fact that this Guide is intended only for facilitating the application of the "Low Voltage" Directive and it is the text of the Directive which is legally binding.

This document is not a legally binding interpretation of the Directive. However, it represents a reference for ensuring consistent application of the Directive by all those involved.

3. These guidelines are not exhaustive: they focus on certain issues only, which, in the light of the experience, are of direct and specific interest for the application of the "Low Voltage" Directive. They are intended to complement the "Guide to the implementation of Community harmonisation directives", edition 2000<sup>5</sup>, as far as issues related in particular to the application of this Directive are concerned. In particular, for the definitions of concepts like "placing on the market", "manufacturer", authorised representative", "importer or person responsible for placing the product on the market", the Guide mentioned above should be consulted.

The issues covered by these guidelines are:

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<sup>2</sup> Pursuant to the Agreement on the European Economic Area (EEA), the provisions of the European legislation incorporated therein are extended to the EFTA countries: Iceland, Liechtenstein and Norway. all references in this guide to the Community or the Community market must be understood to mean the EEA and its market.

Directive 2006/95/EC of the European Parliament and of the Council of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (codified version) OJEU L 374, 27.12.2006

<sup>4</sup> OJ L 374, 27.12.2006, p. 10–19

<sup>5</sup> European Commission "Guide to the implementation of directives based on the new approach and the global approach – 2000 Edition" - Luxembourg: Office for Official Publications of the European Communities - ISBN 92-828-7500-8. The catalogue number is CO-22-99-014-EN-C. It can be obtained through sale points of the Official Journal of the EC.

- the scope of the "Low Voltage" Directive
  - the safety requirements applicable
  - the conformity assessment procedure applicable, including CE marking
  - the relationships with certain other Directives.
4. Reader's attention is drawn to the fact that certain products subject to the "Low Voltage" Directive are also subject to other directives. In order to be allowed on the EC market these products must comply also with the provisions of those directives. These guidelines refer to the application of the "Low Voltage" Directive and clarify the relationship between that Directive and certain other directives.

## II. THE "LOW VOLTAGE" DIRECTIVE

5. Directive 2006/95/EC is a codifying Directive which brings together in one text the "original" Low Voltage Directive 73/23/EEC<sup>6</sup> with its subsequent amendments. Directive 2006/95/EC came into force and repealed Directive 73/23/EC as from 16<sup>th</sup> January 2007.

It should be noted that the content is also identical to the previous Directive (as amended). However the process revealed an inconsistency between different language versions of Directive 93/68/EEC. This has been addressed by issuing a corrigendum<sup>7</sup> to Directive 93/68/EEC, aligning all language versions. This amended Directive 73/23/EEC which was subsequently replaced by Directive 2006/95/EC. The Clause in the new Directive (Article 14b) indicates that references to the old Directive are to be taken to refer to the new Directive. Codification does not change national legislation

The aim of the Directive therefore remains the harmonising the laws of the Member States relating to electrical equipment designed for use within certain voltage limits.

6. The "Low Voltage" Directive is a "total" harmonisation directive in the sense that it has superseded existing national regulations in the field covered: electrical equipment may only be put on the market if it is in conformity with the requirements of the Directive and, on the other hand, Member States may not impede free circulation or the marketing of conforming equipment.

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<sup>6</sup> Directive 73/23/EEC (OJ L 77, 26.3.73, p. 29-33) as amended by Directive 93/68/EC (OJ No L 220, 30.3.1993, p. 1) and Corrigendum to Article 13(4) of Directive 93/68/EEC in order to align the wording of Article 10(1) of Directive 73/23/EEC (as amended by Article 13(4) of Directive 93/68/EEC) in DA, DE, IT, HU, NL, SK and SL to the EN/FR original versions (OJEU L 299, 28.10.2006, p. 32)

<sup>7</sup> See corrigendum in OJ L299/32 of 28.10.2006

### III. SCOPE OF THE “LOW VOLTAGE” DIRECTIVE

#### Which products are covered?

7. The Directive applies to all electrical equipment<sup>8</sup> designed for use with a voltage rating of between 50 and 1000 V for alternating current and between 75 and 1500 V for direct current. Voltage ratings refer to the voltage of the electrical input or output, not to voltages which may appear inside the equipment.

Following discussions with Member States the Commission has taken the position that the term “designed for use with a voltage range” shall be understood at equipment having either a rated input voltage or a rated output voltage inside this voltage range. Internally there may be higher voltages.

Battery operated equipment outside the voltage rating is obviously outside the scope of the LVD. Nevertheless, the accompanying battery-charger as well as equipment with integrated power supply unit within the voltage ranges of the Directive, are in the scope of the LVD. This applies also, in the case of battery-operated equipment with supply voltage rating under 50 V AC and 75 V DC, for their accompanying power supply unit (e.g. Notebooks).

However, the following are excluded from the scope of the “Low Voltage” Directive:

- Electrical equipment for use in a potentially explosive atmosphere
- Electrical equipment for radiology and medical purposes
- Electrical parts for lifts
- Electricity meters,

which are covered by other Community directives, and

- Plugs and socket outlets for domestic use<sup>9</sup>
- Electric fence controllers
- Specialised electrical equipment, for use on ships, aircraft or railways which complies with the safety provisions drawn up by international bodies in which the Member States participate,

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<sup>8</sup> The term “electrical equipment” is not defined in the Directive. Therefore it is to be interpreted according to the internationally recognised meaning of this term. The definition of electric equipment in the “International Electrotechnical Vocabulary of IEC (International Electrotechnical Commission) is: “item used for such purposes as generation, conversion, transmission, distribution or utilisation of electrical energy, such as machines, transformers, switchgear and controlgear, measuring instruments, protective devices, wiring material, current-using equipment.”

<sup>9</sup> “Domestic” plugs and sockets may also be used in commercial or industrial premises for uses which do not require specialised industrial features.

which so far are not covered by any Community directive and therefore must not be CE marked.

8. Broadly, the Directive covers consumer and capital goods designed to operate within those voltage limits<sup>10</sup>, including in particular electrical appliances<sup>11</sup>, lighting equipment including ballasts, switch gear and control gear, electric motors and alternators, electrical wiring, appliance couplers and cord sets, electrical installation equipment<sup>12</sup>, etc. The Commission confirms, as already expressed in the Communication of 15 December 1982, that cable management systems are covered by the “Low Voltage” Directive.

### **Are “components” included in the scope?**

9. In general, the scope of the Directive includes both electrical equipment intended for incorporation into other equipment and equipment intended to be used directly without being incorporated.

However, some types of electrical devices, designed and manufactured for being used as basic components to be incorporated into other electrical equipment, are such that their safety to a very large extent depends on how they are integrated into the final product and the overall characteristics of the final product. These basic components include electronic and certain other components<sup>13</sup>.

Taking into account the objectives of the “Low Voltage” Directive, such basic components, the safety of which can only, to a very large extent, be assessed taking into account how they are incorporated and for which a risk assessment cannot be undertaken, then they are not covered as such by the Directive. In particular, they must not be CE marked unless covered by other Community legislation that requires CE marking.

However, other electrical components which are intended to be incorporated into other equipment and for which a risk assessment can be undertaken<sup>14</sup>, such as -

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<sup>10</sup> Tools for live working (like screwdrivers etc.) are not included. However, such tools are covered by standard EN 60900, not published under the LV Directive.

<sup>11</sup> The LVD Working Party has given the opinion that hand-held and transportable electrically driven tools such as power tool and lawnmowers are not covered by the LVD but by the Machinery Directive. See also chapter 29 of this guide.

<sup>12</sup> Insulating tapes, for which safety depends critically not only on their intrinsic characteristics but also on how they are used under very variable conditions, are not considered electrical equipment and are not covered by the Directive. A European standard, EN 60454, exists for such tapes, which is not published under the Low Voltage Directive.

<sup>13</sup> This includes, for example, active components such as integrated circuits, transistors, diodes, rectifiers, triacs, GTO's, IGBT's, opto-semi-conductors; passive components such as capacitors, inductance, resistors, filters; electromechanical components such as connectors, devices for mechanical protection which are part of equipment, relays with terminals for printed circuit boards, micro switches.

<sup>14</sup> A further assessment of the safety aspects related to the way in which such components are incorporated is in general also necessary.

transformers and electrical motors, are covered as such by the Directive and must be CE marked.

Moreover, the scope of the exclusion of basic components must not be misunderstood and extended to items like lamps, starters, fuses, switches for household use, elements of electrical installations, etc., which, even if they are often used in conjunction with other electrical equipment and have to be properly installed in order to deliver their useful function, are themselves to be considered electrical equipment in the sense of the Directive.

### **Which safety aspects are covered by the Directive?**

10. The Directive covers all risks arising from the use of electrical equipment, including not just electrical ones but also mechanical, chemical (such as, in particular, emission of aggressive substances) and all other risks. The Directive also covers health aspects of noise and vibrations, and ergonomic aspects as far as ergonomic requirements are necessary to protect against hazards in the sense of the Directive.

Article 2 and Annex I lay down eleven “safety objectives”, which represent the essential requirements of this Directive.

11. It should be noted that electromagnetic compatibility (emission and immunity) aspects, except in so far as they deal with safety, are excluded from the scope of this Directive and are separately regulated under Directive 89/336/EEC<sup>15</sup>.

Radiation aspects referred to in Annex I to the Directive are limited to those directly relevant for health and safety of persons, property and domestic animals and do not cover electromagnetic disturbances in the sense of the EMC Directive.

For products emitting ionising radiation two EURATOM Directives<sup>16</sup> should also be considered.

The Commission interpret that all electromagnetic aspects relating to safety including functional safety are covered by the LVD. This covers also the effect of electromagnetic fields, emitted by electrical apparatus.

12. Finally, it should also be noted again that for certain electrical equipment, the provisions of other directives also apply.

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<sup>15</sup> To be repealed by the “new” EMC Directive 2004/108/EC as from 20<sup>th</sup> July 2007

<sup>16</sup> European Commission. Council Directive 97/43/EURATOM of 30 June 1997 on health protection of individuals against the dangers of ionising radiation in relation to medical exposure. Official Journal of the European Communities, L 180:22-27; 9.7.97 and Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation Official Journal L 159 , 29/06/1996 P. 0001 - 0114



#### **IV. SAFETY REQUIREMENTS FOR PLACING ON THE EU MARKET ELECTRICAL EQUIPMENT COVERED BY THE “LOW VOLTAGE” DIRECTIVE**

##### **Which are the mandatory safety requirements applicable in the EU?**

13. Article 2 of the Directive states:

“1. The Member States shall take all appropriate measures to ensure that electrical equipment may be placed on the market only if, having been constructed in accordance with good engineering practice in safety matters in force in the Community, it does not endanger the safety of persons, domestic animals or property when properly installed and maintained and used in applications for which it was made.

2. The principal elements of the safety objective referred to in paragraph 1 are listed in Annex 1.”

14. Member States must ensure the freedom to place on the market and the free movement of electrical equipment, which is in conformity with the requirements of the Directive.

As far as substantive safety requirements are concerned, eleven “objectives” are mentioned in Annex 1 to the directive.

These are the mandatory safety provisions which products must comply with in order to be allowed onto the EU market and benefit from freedom of movement in the Community (Articles 2 and 3). Consequently, any national standards or national specifications related to the safety of electrical equipment do not have a mandatory status and may not be a condition for its placing on the market.

15. Article 7 of the Directive provides for mutual recognition of national standards in case of absence of standards within the meaning of Articles 5 and 6. However, such national standards might, in certain cases, not cover all the “safety objectives” of the Directive. Therefore, manufacturers using those standards should carefully check compliance with all the safety requirements of the Directive.

The phrase at the end of Article 7 ("if it ensures a safety level equivalent to that required in their own territory") does not, per se, authorise Member States to require compliance with safety levels other than those resulting from the "safety objectives".

Nevertheless, compliance with the safety objectives of the Directive -which are henceforth identical for the whole Community- may imply in some cases

compliance with different requirements from one Member State to another to take account of different objective situations, e.g. requirements resulting from supply systems which vary from one region of the Community to another.

16. In the light of the above, national laws or regulations requiring compliance with particular technical specifications (where they exist) may not be considered to be mandatory. They may only eventually have the status of specifications giving presumption of conformity, when appropriate.

It follows that manufacturers can no longer be obliged to comply with national specifications in the case of equipment otherwise satisfying the "safety objectives" of the Directive. Where the standards referred to in Articles 5 or 6 do not yet exist, manufacturers are, of course, entitled to comply with any appropriate specifications in order to facilitate demonstrating conformity with the "safety objectives".

The non mandatory nature of specifications in national rules is from the point of view of EC law confirmed by the rulings of the Court of Justice, according to which national authorities and courts must not apply national provisions which conflict with Community provisions<sup>17</sup>.

17. The existence of national laws or regulations cannot prevent the drawing up of harmonised standards in accordance with Article 5.

Nor can such provisions be imposed in addition to, or instead of, the technical specifications contained in the harmonised standards, as they have ceased to be binding.

Within the field covered by the Directive there is therefore no longer any point in referring to such provisions under "A - deviations" in "harmonisation documents" (HD) or "European standards" (EN)<sup>18</sup>.

Keeping these provisions in the legal system of the Member States in the form of obligatory provisions would constitute an infringement to the Directive and expose the Member States in question to the procedure set out in Article 169 of the Treaty.

### **How to ensure conformity to those requirements?**

18. Products are presumed to conform to the safety objectives of the "Low Voltage" Directive where the equipment has been manufactured in accordance with technical standards which, in the order laid down by the Directive, are as follows:

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<sup>17</sup> Judgements in Case 106/77 Simmenthal (ECR 1978, p. 645) and in Case 148/78 Ratti (ECR 1979, p. 1646).

<sup>18</sup> However, deviation may be justified in special cases by objective situations referred to at the end of paragraph 15.

-European standards (EN or HD), which are referred to as harmonised standards in the Directive<sup>19</sup>, drawn up in accordance with Article 5 by the bodies notified by the Member States (in fact, these are standards made by CENELEC);

- where standards as defined in Article 5 have not yet been drawn up and published, international rules issued by the two international bodies, the International Commission on the rules for the approval of electrical equipment (CEE)<sup>20</sup> or the International Electrotechnical Commission (IEC) (Article 6(1)), and published in accordance with the procedure laid down in Article 6(2) and (3);

- where standards as defined in Article 5 or international standards as defined in Article 6 do not yet exist, the national standards of the Member State of manufacturer (Article 7).

The standards referred to in Articles 5, 6 and 7, the application of which remains voluntary; provide a presumption of conformity for equipment manufactured in accordance with those standards.

A harmonised standard can be used to provide a presumption of conformity at the moment of the first national publication<sup>21</sup> of the standard according to Article 5, second paragraph, and in this regard the listing in the Official Journal of the EU is only for information, in accordance with Article 5, third paragraph. The Official Journal also contains the date of cessation of presumption of conformity of the superseded standard, which is considered to be the date beyond which a harmonised standard is no longer considered to be up to date in the light of technological progress and the developments in good engineering practice in safety matters (Article 5, second paragraph). In this regard the listing therefore provides the definitive text.

19. Alternatively, the manufacturer may construct the product in conformity with the essential requirements (safety objectives) of the directive, without applying harmonised, international or national standards. In such a case the product will not benefit from presumption of conformity conferred by the use of such standards and the manufacturer must include in the technical documentation (see chapter V) a description of the solutions adopted to satisfy the safety aspects of the Directive.

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<sup>19</sup> The differences between “harmonised standards” according to the new approach and harmonised standards under the “Low Voltage” Directive are explained in the “Guide to the implementation of Community harmonisation Directives based on the new approach”, see in particular footnotes 73 and 74 at p. 28.

<sup>20</sup> “CEE” does not exist any longer but its activities are now continued by CENELEC.

<sup>21</sup> It is up to each Member State to determine in the national laws transposing the LVD which national publication confers this presumption under the pre-conditions that the publication is widely available and references all published standards. After this first publication it may be used not only in the territory concerned but anywhere in the world to gain a presumption of conformity.

## V. CONFORMITY ASSESSMENT PROCEDURES UNDER THE “LOW VOLTAGE” DIRECTIVE

### What are the conformity assessment procedures to be applied?

20. Article 8 and Annex IV of the Directive describe the procedure by which the manufacturer or his authorised representative established in the Community<sup>22</sup> ensures and declares conformity of the electrical equipment with the provisions of the Directive. This includes three main elements:

#### Technical documentation.

Before a product is placed on the market the manufacturer puts together the technical documentation which makes it possible to assess whether the electrical equipment complies with the requirements of the Directive (see below)<sup>23</sup>.

#### Declaration of conformity

The manufacturer or his authorised representative established in the Community are also required, and are the only ones authorised to do so, to draw up in writing a declaration of conformity (see below) before placing the product on the market.

#### CE marking

Before it is placed on the market the electrical equipment must have the "CE" marking affixed. Only the manufacturer or his authorised representative established in the Community are authorised to affix the "CE" marking.

Whilst the importer is not able to declare conformity to the Directive, he/ she needs to act with due care to ensure that clearly non-compliant products are not placed onto the market.<sup>24</sup>

21. Where no standards within the meaning of the Directive have been applied, the manufacturer has to provide within the technical documentation a description of the solutions adopted to satisfy the safety requirements of the Directive.

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<sup>22</sup> These obligations do not extend to an importer who will, in general, not have a detailed knowledge of which directives have been considered or technical specifications applied.

<sup>23</sup> Annex IV of the “Low Voltage” Directive states that the manufacturer must take all measures necessary in order that the manufacturing process ensures compliance of the products with the technical documentation and the requirements of the Directive.

<sup>24</sup> With regard to electrical consumer products, cf. also the obligations of "distributors" under Article 5(2) and (3) of the General Product Safety Directive (GPSD) 2001/95/EC. The relationship between the LVD and the GPSD is discussed in Section VI below.

In case of challenge by the authorities in charge of market surveillance, a report in the sense of Article 8(2) (which however is not obligatory) is considered an element of proof. In fact, in addition to the three basic conformity assessment measures, mentioned above, Article 8(2) provides, in the event that conformity is challenged, for the possible submission to the market surveillance authority of a report drawn up by a notified body as evidence that the electrical equipment complies with the safety objectives (Article 2 and Annex I).

The main function of article 8.2 is to provide the conditions most favourable to progress and dynamism in the Electrotechnical industry. It thus facilitates the marketing of high-tech electrical equipment which, being such, cannot benefit from the support of any technical standards since often such standards are drawn up after the development of a technical innovation. What must be included in the technical documentation?

#### **What must be included in the technical documentation?**

22. It must include details of the design, manufacture and operation of the electrical equipment in so far as these details are needed to assess the conformity of the electrical equipment with the requirements of the Directive.

Accordingly, it contains:

- a general description of the electrical equipment,
- design and manufacture drawings plus diagrams of components, sub-assemblies, circuits, etc.,
- descriptions and explanations needed to understand the above mentioned drawings and diagrams plus the operation of the electrical equipment,
- a list of the standards used, in full or in part, and a description of the solutions employed to meet the safety aspects of this directive when standards have not been applied,
- the results of design calculations and of checks carried out, etc.,
- test reports (in fact, the test reports which may be available, either established by the manufacturer or a third party).

#### **Who must keep the technical documentation and where?**

23. The manufacturer or his authorised representative established in the Community must keep this documentation at the disposal of the national authorities for inspection purposes for at least ten years from the last date of manufacture of the product. The technical documentation may be kept on electronic support, provided that it is easily accessible for inspection. Where the manufacturer is not established in the Community and he has no authorised representative in the Community, this obligation is incumbent upon the importer or the person responsible for placing the product on the Community market.

This technical documentation must be held within the Community in such a way it can be presented to the authorities upon first request and within a reasonable time-frame (e.g. two weeks).

#### **Where must the CE marking be affixed?**

24. The CE marking is placed by the manufacturer, or his authorised representative established in the Community, on the electrical equipment or, where this is not practically possible, on the packaging, the instructions for use or the guarantee.

#### **What is the meaning of, and are the requirements of the CE marking?**

25. The CE marking declares conformity of an electrical equipment with the essential requirements and conformity assessment procedures set out under the “Low Voltage” Directive and all the other directives applicable to it.

The CE marking must be affixed visibly, legibly and indelibly.

The affixing of markings which are likely to deceive third parties as to the meaning and form of the CE marking is prohibited.

#### **Who must keep the declaration of conformity and where?**

26. The manufacturer, or his authorised representative established in the Community, or, when the manufacturer is not established in the Community and has no authorised representative in the Community, the importer or person responsible for placing the product on the market, must keep a copy of the declaration of conformity at the disposal of the national authorities for inspection purposes, in the same way as the technical documentation. Thus the national market surveillance authorities may, if appropriate, require a copy of the declaration of conformity.

#### **What must be included in the declaration of conformity?**

27. Annex III.B of the Directive describes the content of the declaration of conformity as follows<sup>25</sup>:

- name and address of the manufacturer or his authorised representative established within the Community,
- a description of the electrical equipment,
- reference to the harmonised standards,
- where appropriate, reference to the specifications on which conformity is declared,
- identification of the signatory who has been empowered to enter into commitments on behalf of the manufacturer or his authorised representative established within the Community,
- the last two digits of the year in which the CE marking was affixed (for the first time).

The declaration of conformity must be drawn up at least in one of the official languages of the Community.

A number of questions have been raised on the issue of the Declaration and the need to show compliance to the latest Directive.

It was further accepted, that from the date on which Directive 2006/95/EC came into force (i.e. 16<sup>th</sup> January 2007), all newly issued documents, especially Declarations of Conformity and Technical Files, where references are made, should refer to this Directive.

However, there is no need to update existing documents, as long as no other corrections are necessary.

## **VI. RELATIONSHIPS BETWEEN THE “LOW VOLTAGE” DIRECTIVE AND CERTAIN OTHER COMMUNITY DIRECTIVES**

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<sup>25</sup> See also EN 45014 containing an example of a declaration of conformity.

**What are the requirements applicable to electrical equipment which is also a “machine” (within the meaning of the “Machinery Directive”<sup>26</sup>)?**

Commission website to the Machinery Directive for information

[http://ec.europa.eu/enterprise/mechan\\_equipment/machinery/index.htm](http://ec.europa.eu/enterprise/mechan_equipment/machinery/index.htm)

**(A) The current “Machinery” Directive 98/37/EC.**

The current “Machinery” Directive 98/37/EC remains in application until 29<sup>th</sup> December 2009.

28. Certain electrical equipment are also “machinery” within the meaning of Directive 98/37/EC as amended.

Both the “Low Voltage” Directive and the “Machinery” Directive cover a wide range of risks. Therefore, the scopes of the two Directives overlap in the case of certain electrical equipment, and a clarification on how to implement the Directives in those cases is necessary.

29. Certain electrical equipment which are also machinery, are excluded altogether from the scope of the “Machinery” Directive, by virtue of Article 1(5) of that Directive<sup>27</sup>.

Article 1(5) of the "Machinery" Directive states that:

"Where, for machinery, the risks are mainly of electrical origin, such machinery shall be covered exclusively by Council Directive 73/23/EEC of 19 February 1973 on the harmonisation of the laws of the Member States relating to electrical equipment designed for use within certain voltage limits".

In general, in order to determine whether the exclusion from the scope of the “Machinery” Directive under Article 1(5) applies to a specific product which may be considered *to be* “machinery” in the sense of Directive 98/37/EC and an electrical equipment in the sense of Directive 73/23/EEC, the manufacturer has to perform a risk assessment of that product.

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<sup>26</sup> Directive 98/37/EC of the European Parliament and of the Council of 22 June 1998 on the approximation of the laws of the Member States relating to machinery (OJ No L 207, 23.07.1998) as amended by Directive 98/79/EC (OJ No L 331/1, 07.12.1998).

<sup>27</sup> These provisions should be seen in the light of the orientations expressed by the Council and the Commission when adopting the Directive. In a statement, those Institutions have declared: “The Council and the Commission agree that the free movement of goods already achieved on the basis of the “Low Voltage” Directive cannot be jeopardised by the present Directive.” The intention was to ensure that some machinery already covered by the LVD were unaffected by the adoption of the “Machinery” Directive.



The European Standard EN 1050 (Safety of Machinery - Principles for risk assessment) provides for principles which may be applied for performing such risk assessment.

When the results of the risk assessment by the manufacturer show that the risks are mainly of electrical origin, the machinery equipment will be covered exclusively by the “Low Voltage” Directive, which anyhow deals with all the safety aspects, including mechanical safety and provides for the same level of safety as the “Machinery Directive”.

In determining whether the risks related to particular products are mainly of electrical origin, manufacturers may be assisted by risk assessment performed by the relevant standardisation bodies in relation to harmonised standards for the products considered, when it has led to publication of such standards under only the “Low Voltage” Directive<sup>28</sup> or only the “Machinery” Directive based on consideration of the dominant risks.

One example is the hand-held and transportable electrically driven tools. It has been agreed by the LVD Working Party that standards covering this type of equipment shall be published only under the “Machinery” Directive in the Official Journal of the European Communities, and hence it has been agreed to apply the conformity assessment procedures of the “Machinery” Directive rather than those of the LVD.

30. Apart from machinery covered by Article 1(5), all machinery having an electrical supply and designed to operate between 50 and 1000 V in AC or 75 and 1500 V in DC is covered by both the “Machinery” Directive and the “Low Voltage” Directive, applying in a complementary way.

In fact, paragraph 1.5.1 of Annex I of the “Machinery” Directive says:

“1.5.1 Electricity supply

Where machinery has an electricity supply it must be designed, constructed and equipped so that all hazards of an electrical nature are or can be prevented.

The specific rules in force relating to electrical equipment designed for use within certain voltage limits must apply to machinery which is subject to those limits.”

Therefore, in the case of machinery with an electrical supply within the voltage limits of the “Low Voltage” Directive:

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<sup>28</sup> Publication in the Official Journal of the EC of the references of harmonised standards under the “Low Voltage” Directive is for information only. Such standards confer presumption of conformity independently from the publication in the Official Journal. Publication in the Official Journal may take some time. Therefore, manufacturers should also take into account the standards which have been presented to the Commission for publication, but are not yet published. This information should be available through European and national standardisation bodies.

a) the essential requirements of the “Low Voltage” Directive related to electrical risks shall be complied with and compliance with the relevant harmonised standards published under the “Low Voltage” Directive shall give a presumption of conformity with such essential requirements.

b) for all such machinery, including those falling under Annex IV of the “Machinery” Directive, the conformity assessment procedures set out in Article 8 of the “Machinery” Directive<sup>29</sup> shall apply. In the case where a type-examination of the machinery is required, the notified body will take into account the results of the conformity assessment procedures of the “Low Voltage” Directive which apply to the intrinsic electrical safety of the electrical components of the machinery, whereas direct examination by the notified body will apply, i.a., to all risks arising from the way in which the electrical components are incorporated into a machinery and ensure their proper functioning.

Obviously, the considerations made in paragraph 9 above for electrical components apply as appropriate to the electrical components of a machinery.

31. To ensure consistency of application, CEN & CENELEC, under a mandate of the Commission have been requested to ensure that all harmonised electrical equipment standards comply with all the relevant Essential Safety Requirements of both the “Low Voltage” Directive and the “Machinery” Directive.

#### **(B) The revised “Machinery” Directive 2006/42/EC.**

As from 29<sup>th</sup> December 2009, a revised “Machinery” Directive 2006/42/EC<sup>30</sup> will be applicable. One of the objectives of the revision is to clarify the borderline between the scope of the “Machinery” Directive and the “Low Voltage” Directive in order to provide greater legal certainty for manufacturers.

Certain categories of electrical machinery will still be excluded from the scope of the “Machinery” Directive; however the exclusion will no longer be based on an assessment of the main risk. Instead, Article 1 of the revised Directive excludes the following categories of electrical machinery from the scope of the “Machinery” Directive:

*“(k) electrical and electronic products falling within the following areas, insofar as they are covered by 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:*

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<sup>29</sup> For “Annex IV” machinery, Article 8 of the Machinery Directive provides for the intervention of a Notified Body.

<sup>30</sup> Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast), (OJ N° L 157, 9.6.2006).

- *household appliances intended for domestic use;*
- *audio and video equipment;*
- *information technology equipment;*
- *ordinary office machinery;*
- *low-voltage switchgear and control gear;*
- *electric motors<sup>31</sup>.*”

All electrical machinery that does not fall into one of the above categories will thus be in the scope of the “Machinery” Directive, although the following should also be taken into account.

Concerning the category mentioned in the first indent of Article 1(2) (k), “*household appliances intended for domestic use*”, several clarifications are necessary:

Firstly, the expression “*household appliances*” designates equipment intended for typical housekeeping functions such as washing, cleaning, heating, cooling, cooking, etc. Examples of household appliances include washing machines, dish washers, vacuum cleaners and machinery for food preparation and cooking. On the other hand, electrical gardening machinery or power tools intended for the construction and repair work in the home are not covered by this exclusion.

Secondly, the exclusion concerns appliances “*intended for domestic use*”, in other words, appliances intended for use by private persons (consumers) in the home environment.

**The statement from the manufacturer in the product information concerning the specific product is the criterion that has to be considered to determine the intended use of the appliance in this case and which Directive applies. Evidently this must accurately reflect the reasonably foreseeable use of the product**

Thirdly, household appliances which are also “machines” previously covered by the LVD according to Article 1(5) of the “Machinery” Directive (98/37/EC) and intended for commercial or industrial use are no longer excluded from the scope of the “Machinery” Directive. Whilst it is possible for a consumer to acquire an appliance intended for commercial use or for a commerce to use an appliance intended for consumers, the criterion to be taken into account for determining the intended use is the use intended and stated by the manufacturer

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31 As a point of clarification generators and alternators (as opposed to generating sets) are not machines

of the appliance concerned in the Declaration of Conformity and in the product information/instructions/advertising concerning the product.

For electrical machinery that is not in any of the categories listed in Article 1(2) (k) and in the related clarifications above, the guidance given in paragraphs 30 of this guide remains valid. However, it should be noted that section 1.5.1 of Annex I to Directive 2006/42/EC has been reworded as follows:

***“1.5.1. Electricity supply***

*Where machinery has an electricity supply, it must be designed, constructed and equipped in such a way that all hazards of an electrical nature are or can be prevented.*

*The safety objectives set out in Directive 73/23/EEC shall apply to machinery. However, the obligations concerning conformity assessment and the placing on the market and/or putting into service of machinery with regard to electrical hazards are governed solely by this Directive.”*

This implies that, whilst machinery with an electrical supply within the voltage limits of the “Low Voltage” Directive must fulfil the safety objectives of the “Low Voltage” Directive, the manufacturer’s EC Declaration of conformity should not refer to the LVD.

The Commission has issued a mandate to CEN and Cenelec<sup>32</sup> to take account of the revised “Machinery” Directive 2006/42/EC. In particular, the mandate requests the European Standardisation Organisations to make the necessary adjustments to standardisation to take account of the redefined borderline between the “Machinery” Directive and the “Low Voltage” Directive and the fact that certain types of machinery, currently subject to the “Low Voltage” Directive, may become subject to the “Machinery” Directive.

**What are the requirements applicable to electrical equipment which is intended for being permanently incorporated in construction works?**

32. Some types of electrical equipment covered by the "Low Voltage" Directive are manufactured with a view to being permanently incorporated in construction works. Consequently, such equipment must also be fit for use and meet the essential requirements as provided for by Directive 89/106/EEC<sup>33</sup> and set out in

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<sup>32</sup> Mandate M/396 issued on 19 December 2006.

<sup>33</sup> Council Directive of 21.12.1988 concerning production products (89/106/EEC (OJ No L 40, 11.2.1989), as amended by Directive 93/68/EEC (OJ No L 220, 30.8.1993).

the interpreting documents used as a reference to establish the harmonised standards under that Directive, and comply with the conformity assessment procedures set out in its Article 13.

As a result, application to such electrical equipment of the provisions of the "Construction Products" Directive presupposes the existence of both harmonised standards within the meaning of the "Construction Products" Directive and decisions concerning the conformity assessment procedures, again within the meaning of that Directive.

Should these essential conditions not be met, the provisions of Directive 89/106/EEC cannot in practice be applied to the relevant electrical equipment.

33. However, the "Low Voltage" Directive sets a wide range of safety objectives, overlapping with essential requirements in Annex I to Directive 89/106/EEC. In order to best ensure the objectives of both directives, existing harmonised standards (as published under the "Low Voltage" Directive) are being examined in order to ensure that they are also consistent with the relevant essential requirements of the "Construction Products" Directive.

**What is the relation with the "Radio equipment and telecommunications terminal equipment" directive<sup>34</sup>**

34. Equipment, or relevant components of equipment, falling under the R&TTED are covered by the provisions of that Directive regarding the essential requirements for health and safety. However, the R&TTED does not have its own detailed requirements, and refers to the safety objectives of the LVD, but with no voltage limit applying.

Harmonised standards listed in the OJEU under the LVD and identified as also applicable under the R&TTED give a presumption of conformity under that latter Directive, even for voltages outside the LVD limits. Safety standards for voltages outside the LVD range can be mandated and referenced under the R&TTED only, if required.

Manufacturers can choose to use the conformity assessment procedures of the LVD for equipment falling within the LVD voltage range.

Products that are subject to more than one Directive must meet the requirements of all applicable Directives. Where the R&TTE element of a product is integrated into the product, the product marking must include the appropriate R&TTE marking, including R&TTE equipment class identifiers and notified body numbers, if applicable.

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<sup>34</sup> 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 No L 91/10, 7. 4. 1999)

### **What is the relation with the “Gas Appliances” Directive<sup>35</sup>**

35. Appliances covered by the “Gas Appliances” Directive often include electrical components which fall also under the “Low Voltage” Directive. In particular, Article 1 of the “Gas Appliances” Directive specifies that the Directive also applies to safety devices, controlling devices or regulating devices and subassemblies (separately marketed for trade use and designed to be incorporated into an appliance burning gaseous fuel or assembled to constitute such an appliance”. Some of these components, are or include electrical equipment. The “Gas Appliance” Directive and the “Low Voltage” Directive apply in a complementary way to electrical components (designed to be used in the voltage ranges of that Directive) incorporated (or to be incorporated) into gas appliances.

Conformity assessment within the framework of the “Gas Appliance” Directive shall be conducted in accordance with the procedure laid down in that Directive, taking into account the results of the conformity assessment procedures of the “Low Voltage” Directive, applied, in relation to the “Safety objectives” of this last Directive to electrical components of gas appliances. The safety aspects of the way in which the electrical components are incorporated into the gas appliances and ensure their proper functioning will be subject to direct examination by notifies bodies.

For further information, please see the relevant “[Guidances](#)” to the GAD.

### **What is the relation with the "Lifts" Directive<sup>36</sup>?**

The electrical parts of lifts are not subject to the LVD as such. However, the electrical equipment of lifts and safety components for lifts must comply with the safety objectives set out in Annex I of the LVD

### **What is the relationship with the General Product Safety Directive (GPSD) 2001/95/EC?**

The GPSD establishes a general obligation to place only safe consumer products on the market as well as a procedure for the adoption of standards covering risks and categories of risks. However, the general safety obligation under in that Directive does not apply to products falling under the LVD as the latter covers all risks.

Given that the GPSD only applies where it contains different or more specific provisions the following elements need to be considered in parallel:

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<sup>35</sup> Council Directive of 29 June 1990 concerning gas appliances (90/396/EEC (OJ No L 196, 26.7.1990), as amended by Directive 93/68/EEC (OJ No L 220, 30.8.1993).

<sup>36</sup> European Parliament and Council Directive 95/16/EC of 29 June 1995 on the approximation of the laws of the Member States relating to lifts (OJ L 213 , 07.09.1995 P. 0001 – 0032)

*Identification of the product – GPSD article 5.1, subparagraphs 3 and 4*

These articles contain a specific provision on identification of the product itself, for example by a product reference. The objective is to facilitate identification of the product concerned and to allow for action at the most appropriate level.

*Follow up of consumer safety after products are marketed – GPSD article 5.1, subparagraphs 3, 4 and 5*

These subparagraphs require producers to take appropriate active steps after the product has been marketed. Examples include sample-testing, filing and keeping a register of complaints and also keeping distributors informed of this monitoring activity. The objective is to ensure preventive action and to detect risks.

*Information from producers to the competent authorities about dangerous products – GPSD article 5.3*

GPSD article 5.3 requires producers to inform the competent authorities of dangerous products and action taken to prevent risk. The objective is to ensure that the competent authorities can take appropriate steps to reduce risks to consumers and to ensure co-ordinated action.

*Co-operation with the competent authorities – GPSD article 5.4*

GPSD article 5.4 requires producers to co-operate with the competent authorities upon request. The objective is to ensure that action to avoid risk is co-ordinated.

The LVD does not cover the aspect of co-operation between producers and the competent authorities explicitly, although co-operation is implicitly foreseen as a pre-condition for the functioning of the Directive.

*Distributors' obligations - GDSP chapter III*

There are several provisions in the GPSD articles 5.2, 5.3 and 5.4 dealing with distributors' obligations. The overall objective is to ensure that distributors do not supply dangerous products and that they participate in measures taken to reduce risks to consumers.

*Adopting rules on penalties – GPSD article 7*

This explicitly requires that Member States lay down rules on penalties although there is no obligation on how to operate the rules on penalties. The objective is to include penalties in the range of possible measures to ensure compliance at national level.

*Attribute of powers to competent authorities – GPSD article 8*

GPSD article 8.1 sets out an extensive list of the powers Member States should have in order to take action in appropriate situations.

According to article 8.3, the powers in article 8.1 (b) to (f) must in particular be available where products pose a serious risk. Article 8.2 and 8.4 deal with the exercise of these powers in practice, for example to whom to address a measure and the obligation to take proportionate actions. These are supplementary provisions to the powers listed in article 8.1, and not separate obligations. According to Article 8.2, subparagraph 2 the competent authorities of the Member States should encourage voluntary action in relation to the area of power.

The powers attributed in article 8.1 cover three different aspects.

First article 8.1 (a) deals with information gathering (samples, checks, and information). The objective is to ensure that the competent authorities have the powers to obtain knowledge from the relevant organisation.

Second, article 8.1 (b) and (c), includes powers necessary to make marketing conditional, for example marking and warnings. The objective is to reduce risk.

Third, article 8.1 (d) to (f) covers bans and recall, including recall from consumers. The objective here is to prevent dangerous products from causing harm.

#### *Approach to market surveillance – GPSD article 9*

This obliges Member States to adopt an approach on market surveillance which may include in particular surveillance programs and follow-up and updating of scientific and technological safety knowledge. Interested parties must be given the opportunity to submit complaints and must be informed about complaint proceedings.

#### *European Network – GPSD article 10*

Article 10 establishes a European Network of the Member States authorities. The objective is to facilitate exchange of information, joint surveillance and improved cooperation.

Co-operation between member states is inherent in the LVD. In particular, articles 9 and 11 of the LVD foresee a mechanism for the exchange of information, and the Commission

Services have established an informal Administrative Co-operation Group between Competent Authorities of Member States in order to ensure a consistent implementation of LVD.

Whereas Article 10 applies to LVD, Administrative co-operation is carried out through the Administrative co-operation Group for LVD already established.



*Exchange of information and rapid intervention - RAPEX – GPSD article 12*

Article 12 provides a legal basis for an information exchange system for emergency situations (RAPEX system). The objective is to provide information to all Member States in order for them to take immediate action when a serious risk from a product has been detected.

*Rapid intervention procedures – GPSD article 13*

Article 13 introduces a basis for rapid intervention by the Commission in cases of serious risk. The objective is to eliminate risk effectively.

*Committee procedures and final provisions - Committee procedures – GPSD articles 14 and 15*

The GPSD articles 14 and 15 set out the basis for committee proceedings under the GPSD. The articles only apply for procedures under the GPSD. It follows from point 4.5.3 above that such procedures can concern LVD products (rapid intervention).

*Protection of confidentiality and motivation of measures – GPSD articles 16 and 18*

Articles 16 and 18 deal with administrative requirements when competent authorities in the Member States or the Commission adopt measures under the GPSD.








Article 16 regulates access to information and protection of confidentiality while article 18 requires that measures taken must state the appropriate reasons, those remedies available shall be quoted, that opportunity to submit views is allowed etc.

The objective is to ensure that the interests of stakeholders are being duly respected at the same time as the objectives of the Directive are being reached.

*Remark: Economic operators should take into account that new legislation is being prepared which in general will extend the provisions of the GPSD to professional products.*

**Table 1: List with examples of products within or outside the scope of LVD**

*The list has been confirmed during the LVD-Working party meeting on 15 November 2006*

| Products   | Scope of LVD | Examples of products   | Comments  |
|--|--------------|--|---|
| Plugs<br>230 V for domestic use  | No           |    | *   |
| Socket outlets<br>230 V for domestic use   | No           |    | *   |
| Luminaire plugs and socket outlets<br>For domestic use   | No           |    | *   |
| Appliance couplers –plugs, -outlets  | Yes          |    | E.g. Standard EN 60320  |
| Appliance couplers for industrial purposes   | Yes          |    | E.g. Standard EN 60309  |
| Appliance couplers e.g. vehicle heater<br>i.e. manufacturer fabricated standard                                      | Yes          |    | * It shall not be interconnectable with other plugs or socket outlets |
| Cables   | Yes          |    | Marked with HAR to increase the tractability                          |
| Components   | -            | -  | For more information read paragraph 9 in LVD Guidelines               |
| Cord extension sets<br>Plug + cable + socket outlet with or without passive components e.g. Varistors                | Yes          |  | *   |
| Cord sets and interconnection cord sets<br>Plug + cable + cord set   | Yes          |  | *   |
| Installations enclosures and conduits  | Yes          | -  |   |
| Insulating tape  | No           | -  |   |
| Plug with multiple way socket outlets<br>Travel adaptors with and without built-in fuse                              | No           |  | *   |
| Plug with one or more socket outlets with incorporated electronic dimmer or twilight dimmer                          | Yes          |  | *   |
| Product with integrated plug and/or outlets.<br>230V for domestic use (e.g. charger for mobile phones, night lights) | Yes          |  | *   |
| Switches for households and similar fixed electrical installations   | Yes          |  |   |
| Tools for working with live parts  | No           |  | E.g. Standard EN 60900  |
| Voltage detector   | Yes          |  | E.g. Standard EN 61243  |

\* Note that most of the European countries have special requirements on Plugs and Socket outlets for domestic use according to their national legislation.

## **Additional European Union Legislation Affecting Electrical Products**

Please go to the Commission website

[http://ec.europa.eu/enterprise/electr\\_equipment/legislat.htm#i](http://ec.europa.eu/enterprise/electr_equipment/legislat.htm#i)

for other legislation affecting Electrical Products as follows:

For information this covers such aspects as:

Electromagnetic Compatibility;

Energy labelling of household appliances;

Minimum efficiency requirements;

Office Equipment - Energy Star Programme;

Energy-using Products (EuP);

Waste Electrical and Electronic Equipment (WEEE, RoHS);

General Product Safety Directive (GPSD) 2001/95/EC.