EUROPEAN COMMISSION
ENTERPRISE DIRECTORATE-GENERAL
Conformity and standardisation, new approach, industries under new approach
Mechanical and electrical equipment (including telecom terminal equipment)

Brussels, 6 February, 2004
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DG ENTR/G/3

LVD/04/I/20

Agenda item 4: Revision of the Low Voltage Directive

Background:
After discussions in meetings of the Working Party under the Low Voltage Directive LVD 73/23/EEC DG Enterprise started in 2000 to set up a restricted Working Group consisting of the relevant stakeholders for the preparation of a revised text of the Low Voltage Directive for consideration. The discussion within the working group focuses on the following topics:

1. Scope of the directive and interface with other directives (voltage limit, Inclusion health aspects, Definitions);
2. Safety Objectives (Inclusion of risk assessment, level of detail of the essential requirements);
3. Market surveillance and traceability;
4. Adaptation to New Approach principles .

The group has met six times. All comments from the members of the group were processed and the text was modified to take them into account to the extent possible. All documents prepared within this group were put onto the ENTR web-site for information.

The Commission will start an extended Impact Analysis in 2004 to determine the economic social and environmental effect of the proposed changes. An external consultant will carry out this analysis. In addition to that the Commission will organise on 4 May 2004 a workshop in order to present the outcome of the revision process to the general public.

The results of the impact assessment and of the workshop will be considered in the final proposal of the new directive.

Attachments:

LVD update.5

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LVD UPDATE.5
Working Document

The present working document contains the results of previous discussions in the meetings of the Working Group LVD Update. The attention of the reader is drawn to the fact that this document will be reviewed following consultation with interested parties and Member States.

On the internet sites of the European Commission:

http://europa.eu.int/comm/enterprise/electr_equipment/lv/direct/review.htm

the following documents are available:

LVD UPDATE.0	Results of the discussion during the meeting of the WP LVD update in May 2001
LVD UPDATE.1	Results of the discussion during the meeting of the WP LVD update in October 2001
LVD UPDATE.2	Results of the discussion during the meeting of the WP LVD update in September 2002
LVD UPDATE.3	Results of the discussion during the meeting of the WP LVD update in January 2003
LVD UPDATE.4	Results of the discussion during the meeting of the WP LVD update in June 2003
LVD UPDATE.5	Results of the discussion during the meeting of the WP LVD update in October 2003

No.	Results of previous discussion and consultation	
1.		**The current wording has been generally agreed by the LVD update group.**
2.	**Whereas** the essential health and safety requirements must be observed in order to ensure that electrical equipment is safe; these requirements must be applied taking account of the generally acknowledged state of the art based on technical, economic, social and environmental factors, experience and relevant consolidated findings of science at the time of design and manufacturing;	
3.	**Whereas** electrical equipment must be designed and manufactured in such a way that electric, magnetic, and electromagnetic fields and other non-ionising radiation generated by the equipment are limited to the extent necessary for its operation, and operate at a safe level in compliance with the generally acknowledged state of the art, taking due account of relevant community legislation.	
4.	**Whereas** electrical equipment must be designed and manufactured so as to ensure that any emission of ionising radiation is limited to the extent necessary for its operation and that the effects on exposed persons are non-existent or reduced to non-dangerous levels in compliance with the generally acknowledged state of the art taking due account of Council Directive 96/29/EURATOM "laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation";	
5.	**Whereas** the definition of electrical equipment includes only those components intended for incorporation into electrical equipment (such as operating switches and transformers) or installations (such as cable management systems), the safety of which depends to a large extent on their intrinsic characteristics. Basic components where the safety of which mainly depends on the way they are incorporated into the final equipment, such as integrated circuits, capacitors and connectors are not covered by this Directive.	**Wording still open**
6.	**Whereas** Member States shall not create any obstacles to the display and/or demonstration at trade fairs, exhibitions or similar events of equipment which does not comply with this Directive provided that a visible sign clearly indicates that such equipment may not be placed on the market until it has been brought into conformity with this Directive. Demonstration may only take place provided that adequate measures are taken so as to ensure the safety of persons, animals, the environment and property.	
7.	**Whereas** specialised electrical equipment, intended solely for use on ships, aircraft or railways, which	

	comply with safety provisions including electrical safety drawn up by international bodies in which Member States and/or European Commission participate is excluded from the scope of this directive.	
8.	**Whereas** the manufacturer of electrical equipment is under the obligation to perform a risk assessment taking into account all relevant conditions of use that are reasonably foreseeable. This also includes the consideration of people with special needs e.g. children and elderly where relevant.	
9.	**Whereas** international electrotechnical standardisation (IEC) forms the basis for most of the European standards giving presumption of conformity under this directive.	**Wording still open**
10.		
11.	**Title of the directive**	
12.	**Directive** xx/xx/EC of the European Parliament and of the Council of the European Union relating to low voltage electrical equipment	
13.	**Article 1: Scope and definitions**	
14.	This Directive regulates the health and safety requirements for low voltage electrical equipment. It aims at ensuring the proper functioning of the internal market of the European community while ensuring a high level of protection regarding health and safety.	
15.	This directive shall not apply to the following equipment:	
16.	(a) Electrical equipment as defined under Article 296 of the EC Treaty	
17.	(b) Domestic plugs and sockets outlets for connection to the AC mains supply	
18.	(c) Basic components intended to be incorporated into electrical equipment whose compliance with the essential requirements of this Directive cannot be assessed before incorporation;	**Wording still open**
19.	(d) Specialised electrical equipment, intended solely for use on ships, aircraft or railways, which comply with safety provisions including electrical safety drawn up by international bodies in which Member States and/or the European Commission participate.	
20.	(e) Type-approved motor vehicles and electrical equipment to be delivered with the vehicle and not supplied by the mains. This also includes replacement parts.	**Wording still open**
21.	(f) High-voltage step-down transformers for use in electricity distribution networks with an input voltage above 1000 Volts	
22.	(g) Electrical equipment covered by more specific Community legislation designed to achieve the same objectives as this Directive with regard to placing on the market, free movement of goods and to the protection of health and safety.	
23.		
24.	For the purpose of this directive, the following definitions shall apply:	
25.		

26.	**Electrical equipment**	
27.	Any equipment designed for use with a supply or output voltage not exceeding 1000 Volt for alternating current and 1500 Volt for direct current and intended for the purposes of generation, conversion, transmission, distribution or utilisation of electricity.	
28.	Electrical components intended to be incorporated into electrical equipment or installations and designed to fulfil a function in such away that their compliance with the essential requirements can be assessed before incorporation, are deemed to be electrical equipment for the purposes of this Directive.	**Wording still open**
29.		
30.	**Benign electrical equipment**	
31.	Electrical equipment identified by the manufacturer or his authorised representative in the Community with respect to its inherent safety characteristics as presenting negligible hazards as referred to in Article 2.	
32.		
33.	**Harmonised Standards**	
34.	"Harmonised standard" means a technical specification adopted by a recognised European standardisation body under a mandate from the Commission in conformity with the procedures laid down in Directive 98/34/EC (amended by 98/48/EC) for the purpose of establishing a European requirement. Compliance with a "Harmonised standard" is not compulsory.	
35.		
36.	**Intended use**	
37.	The use of the equipment according to the information supplied by the manufacturer on the labelling, in the instruction for use and/or promotion material or that can normally be expected from common usage.	
38.		
39.	**Electric, magnetic, or electromagnetic fields** Non-ionising fields or radiation from 0 Hz to 300 GHz;	
40.		
41.	**Other non ionising radiations** Optical radiation or infra-red, visible or ultra-violet electro-magnetic waves from 300 GHz to $3x10^{15}$ Hz;	
42.		
43.	**Ionising radiation** Any electromagnetic field having a frequency above $3x10^{15}$ Hz. Sub-atomic particles emitted as a result of radioactive decay (e.g. alpha particles, beta particles and neutrons) or as a result of the	

	characteristics of the electrical equipment are also designated as being ”Ionising radiation”.	
44.		
45.	***Article 2***	
46.	The Member States shall take all appropriate measures to ensure that electrical equipment placed on the market and/or put into service only if it is in conformity with the essential health and safety requirements at Annex I of this directive and its conformity has been assessed according to the provisions of this Directive.	
47.		
48.	***Article 3***	
49.	1. The Member States shall take all appropriate measures to ensure that if electrical equipment is of such a nature as to comply with the provisions of Article 2, subject to the conditions laid down in Articles 5 and 8, the free movement thereof within the Community shall be assured with respect to health and safety.	
50.	2. In the event of a challenge, the manufacturer or his authorised representative within the Community or importer may submit a report, drawn up by a body, which is notified in accordance with the procedure set out in Article 11, on the conformity of the electrical equipment with the provisions of Article 2.	
51.		
52.	***Article 4***	
53.	The Member States shall ensure that more stringent health and safety requirements than those laid down in Article 2 are not imposed by electricity supply bodies for connection of electrical equipment to the grid, or for the supply of electricity to users of electrical equipment.	
54.		
55.	***Article 5***	
56.	1. Where equipment complies with the relevant harmonised standards whose references have been published in the Official Journal of the European Union, Member States shall presume compliance with the essential requirements referred to in Annex I, to which such standards relate.	
57.	2. Where it is considered that a harmonised standard, whose references have been published in the Official Journal of the European Union, does not fulfil the requirements of Annex I within its scope, the Commission or a Member State shall bring the matter before the Committee instituted by Directive 98/34/EC hereinafter referred to as “the Committee” giving the reasons thereof. The Committee shall deliver an opinion without delay.	

	In light of the Committee's opinion, the Commission shall decide to maintain the listing, or to maintain the listing but note restrictions on the presumption of conformity offered by the standard concerned, or to withdraw the relevant references in the Official Journal of the European Union.	
58.		
59.	***Article 8***	
60.	*Conformity assessment procedure*	
61.	• Compliance of electrical equipment with the essential requirements referred to in Article 2 shall be demonstrated using the procedure described at Annex IV (internal production control).	
62.	• For benign electrical equipment the simple conformity assessment procedure as referred to in Annex V shall be applied.	
63.	***Article 8bis***	
64.	*CE marking*	
65.	Electrical equipment whose compliance with this Directive has been established by the procedure laid down in Article 8 shall bear the CE marking which attests to that fact. The affixing of the CE marking shall be the responsibility of the manufacturer or his authorised representative established within the Community. The CE marking shall be affixed in accordance with the provisions set out in Annex III.	
66.	Member States shall take the necessary measures to prohibit the affixing to the electrical equipment, or to its packaging, or to the accompanying documents of marks which are likely to mislead third parties in relation to the meaning and/or graphic form of the CE marking.	
67.	Any other mark may be affixed to the electrical equipment, its packaging, or accompanied documents, provided that neither the visibility nor the legibility of the CE marking is thereby impaired.	
68.	Without prejudice to Article 9:	
69.	• Where a competent authority establishes that the CE marking has been unduly affixed, the manufacturer or his authorised representative established within the Community shall bring the apparatus into conformity with the provisions concerning the CE marking under conditions imposed by the Member State concerned.	
70.	• Where non-compliance continues, the Member State must take all appropriate measures to restrict or prohibit the placing on the market of the electrical equipment in question or to ensure that it is withdrawn from the market.	
71.		
72.	***Article 9***	

73.	1. If, for reasons of health and safety, a Member State prohibits the placing on the market of any electrical equipment or impedes its free movement, it shall immediately inform the other Member States and the Commission, indicating the grounds for its decision and stating in particular:	
74.	- whether its non-conformity with Article 2 is attributable to a short-coming in the harmonised standards referred to in Article 5;	
75.	- whether its non-conformity is attributable to faulty application of such standards or publications or to non-conformity with the essential health and safety requirements at Annex I.	
76.	2. If other Member States raise, within 60 calendar days from receipt of the formal notification by the Commission, objections to the decision referred to in paragraph 1 the Commission shall immediately consult the Member States concerned.	
77.	3. If agreement has not been reached within 90 calendar days from the date of notification as laid down in paragraph 1, the Commission shall seek for a detailed opinion. The opinion shall state the extent to which the provisions of Article 2 have not been complied with.	
78.	4. The Commission shall communicate the opinion to all the Member States which may, within a period of one month after receiving the report, make their observations known to the Commission. The Commission shall at the same time note any observations by the parties concerned on the above mentioned opinion.	
79.	5. Having taken note of these observations the Commission shall, if necessary, formulate the appropriate recommendations and/or opinions.	
80.		
81.	***Article 10*** ***(moved to Article 8)***	
82.		
83.	***Article 11:*** ***Competent bodies***	**Still open**
84.		

No.	Results of previous discussion and consultation	

85.	**Annex I**	**The current wording of Annex I has been generally agreed by the LVD update group.**
86.		
87.	**Essential health and safety requirements**	
88.		
89.	**Section I**	
90.	**General requirements**	
91.		
92.	1. The manufacturer of electrical equipment is under the obligation to perform a risk assessment referring to the essential health and safety requirements.	
93.	Where the results of the risk assessment indicate that the inherent characteristics of the electrical equipment are such that they present no hazards the manufacturer shall apply the simplified procedure described in Annex V.	
94.	Applying Harmonised Standards covering all relevant essential health and safety requirements fulfils the obligation to perform a risk assessment.	
95.	2. The obligations laid down by the essential health and safety requirements apply to electrical equipment	
96.	• when properly installed and maintained according to the manufacturer's instructions,	
97.	• taking due account of its intended use.	
98.	The equipment shall not present any risks up to and including the end of its lifetime.	
99.	Reasonably foreseeable conditions including overload must also be taken into account.	
100.		
101.	**I .1 Principals of safety integration**	
102.		
103.	a) Electrical equipment must be designed and manufactured so that it provides adequate protection for persons and, where appropriate, domestic animals and property.	
104.	This protection must be provided against all health and safety hazards, listed in this annex, arising from the use of the equipment taking into account its functionality, or such hazards caused by external influences on the equipment itself.	

No.	Results of previous discussion and consultation	

105.		
106.	b) The solutions adopted by the manufacturer for the design and construction of the equipment must conform to safety principles, taking into account the generally acknowledged state of the art.	
107.	In selecting the most appropriate solution, the manufacturer must apply as far as reasonably possible the following principles in the order given:	
108.	– eliminate hazards or reduce risks by inherent design measures;	
109.	– take the necessary protective measures in relation to risks that cannot be reduced by inherent design measures;	
110.	– inform intended users and where appropriate other persons of the residual risks, indicate whether any particular training is required and specify any need to use personal protective equipment.	
111.		
112.	c) Equipment shall be	
113.	– designed and manufactured so that it can be safely and properly assembled, connected and maintained;	
114.	– supplied with the necessary accessories to permit safe connection and installation by end user taking due account of normal practice.	
115.		
116.	**Section II**	
117.	**Requirements regarding design and construction**	
118.		
119.	**II.1 Protection against electric shock and other electrical hazards**	
120.	Equipment must be designed and manufactured in such a way that persons and/or domestic animals shall be protected under normal or reasonable fault conditions against danger of excessive current passing through the body.	
121.	Equipment must provide adequate protection against electrical hazards, in particular, arising from:	
122.	- leakage current;	
123.	- energy supply;	
124.	- stored charges;	
125.	- arcs.	
126.	The protective measures shall take into account electrical, mechanical, chemical and physical stresses.	
127.		
128.	**II.2 Protection against fire hazards**	

No.	Results of previous discussion and consultation	

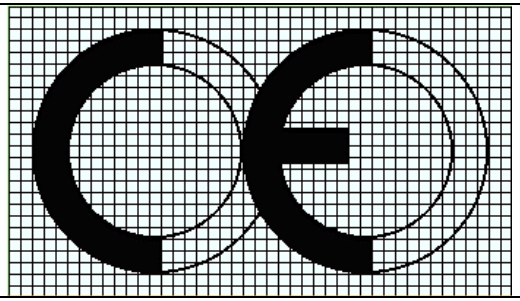
129.	II.2.1 Equipment must provide an adequate level of fire resistance to an external ignition source and must not contribute significantly to the spread of fire.	**Wording still open**
130.	Electrical equipment must provide, where appropriate, adequate protection against fire hazards initiated by the electrical equipment itself or by substances produced, emitted or used by the electrical equipment.	
131.		
132.	**II.3 Protection against mechanical hazards**	
133.	Equipment must provide adequate protection against mechanical hazards caused by the equipment or by the effect of expected external forces acting on the equipment, in particular, arising from:	
134.	- instability;	
135.	- ejected objects;	
136.	- rough surfaces, sharp edges or corners;	
137.	- moving parts;	
138.	- vibration;	
139.		
140.	**II.4 Protection against other hazards**	
141.	Equipment must provide adequate protection against hazards, in particular, arising from:	
142.	- explosion caused by the equipment itself or by substances which may be produced, emitted or used by the equipment;	
143.	- implosion;	
144.	- acoustic noise;	
145.	- excessive temperature of materials ejected or accessible non-working surfaces likely to be touched;	
146.	- adverse biological and / or chemical phenomena;	
147.	- hygiene conditions for those parts of equipment intended to come into contact with the human body or with products or substances to be ingested by or administered to human beings;	
148.	- emissions, production and/or use of hazardous substances (e.g. gases, liquids, dusts, mists, vapour);	
149.	- ageing of materials;	
150.	- unattended operation;	
151.	- connection to and interruption from power supply;	
152.	- combination of equipment;	
153.	If equipment is intended for use in combination with other equipment, each equipment shall be designed and instructions shall be provided so that it is possible to combine the equipment without creating hazards.	

No.	Results of previous discussion and consultation	

154.	- Energy supply other than electricity.	
155.		
156.	**II.5 Protection against hazards arising from incorrect functioning**	
157.	Equipment shall be designed and manufactured so as to provide adequate protection against hazards arising from malfunctioning, due to:	
158.	- expected environmental conditions, including electric, magnetic and electromagnetic disturbances;	
159.	- logic errors in hardware or software	
160.	- interruptions or normally expected fluctuations in the power supply;	
161.	- unexpected starting or stopping operation;	
162.	- failure to stop or to start.	
163.		
164.	**II.6 Protection against hazards arising from electric, magnetic, and electromagnetic fields, other ionising and non ionising radiation**	
165.	Equipment must be designed and manufactured in such a way that electric, magnetic, and electromagnetic fields and other non ionising radiations generated by the equipment are limited to the extent necessary for its operation, and operate at a safe level	
166.	Equipment must be designed and manufactured in such a way that any emission of ionising radiation is limited to the extent necessary for its operation and that the effects on exposed persons are non-existent or reduced to non-dangerous levels.	
167.	**II.7 Ergonomics**	
168.	Equipment shall be designed and manufactured in accordance with ergonomic principles including the ability to be moved and handled safely.	
169.		
170.	**Section III**	
171.	**Information Requirements**	
172.	**III .1 General**	
173.	(a) Equipment shall be identified either by means of type, batch, serial number or any other information allowing for the identification of the product and for the traceability of the manufacturer. This shall be marked legibly and indelibly on the equipment or, if this is not possible, in the accompanying instructions for use. This identification shall be amended accordingly if the equipment is altered in respect of the essential health and safety requirements of this Directive.	
174.	(b) Equipment shall be accompanied by the name and address of the manufacturer, and, if he is not	

No.	Results of previous discussion and consultation	

	established in the Community, the name and address of the person established in the Community responsible for placing the equipment on the market.	
175.	(c) Information provided with the equipment shall include instructions for safe installation, maintenance, cleaning, operation and storage.	
176.	(d) Where risks remain despite all the measures adopted or in the case of potential risks, which are not evident, appropriate warnings must be provided.	
177.	(e) The essential characteristics, the recognition and observance of which will ensure that equipment will be used safely and in applications for which it was intended and for which it can reasonably be foreseen, shall be marked legibly and indelibly on the equipment or, if this is not possible, in the accompanying instruction for use.	
178.	(f) Information provided either by marking or in the instructions for use, which is essential for the safe use of the equipment, shall be easily understandable by the intended user.	
179.		

180.	**Annex III**	**The current wording of Annex III has been generally agreed by the LVD update group.**
181.		
182.	**CE conformity marking and EC declaration of conformity**	
183.		
184.	**A. CE conformity marking**	
185.	The CE conformity marking shall consist of the initials "CE" taking the following form:	
186.		
187.		
188.		
189.	The CE marking must have a height of at least 5 mm. If the CE marking is reduced or enlarged the proportions given in the above graduated drawing must be respected. The CE marking must be affixed to the electrical equipment or to its data plate and packaging. Where this is not possible or not warranted on account of the nature of the equipment, it must be affixed to the accompanying documents. Where the electrical equipment is the subject of other Directives covering other aspects and which also provide for the CE marking, the latter shall indicate that the equipment also conforms with those other Directives. However, where one or more of those Directives allow the manufacturer, during a transitional period, to choose which arrangements to apply, the CE marking shall indicate conformity only with the	

No.	Results of previous discussion and consultation	Comments
	Directives applied by the manufacturer. In this case, particulars of the Directives applied, as published in the Official Journal of the European Union, must be given in the documents, notices or instructions required by the Directives and accompanying such electrical equipment. The CE marking shall be visible, easily legible and indelible.	
190.		
191.	**B. EC declaration of conformity**	
192.	The EC declaration of conformity must be drawn up in one of the official languages of the Community. It must contain, at least, the following:	
193.	• reference to this Directive;	
194.	• date of the declaration;	
195.	• name and address of the manufacturer and, where applicable, the name and address of his authorised representative within the Community;	
196.	• a description of the equipment, including type, batch, serial-, model number or any other information allowing for the identification of the product and for the traceability of the manufacturer;	
197.	• dated reference to the harmonised standards, where these have been applied;	
198.	• where appropriate, dated references to other specifications with which conformity is declared to ensure the conformity of the electrical equipment with the provisions of this directive;	
199.	• identification and signature of the person empowered to bind the manufacturer or his authorised representative within the Community.	

200.	**Annex IV**	**The current wording of Annex IV has been generally agreed by the LVD update group.**
201.		
202.	**Internal production control**	
203.	1. Internal production control is the procedure whereby the manufacturer or his authorised representative established within the Community, who carries out the obligations laid down in point 2, ensures and declares that the equipment satisfies the requirements of this Directive that apply to it. The compliance of the electrical equipment shall be attested by a written EC declaration of conformity issued by the manufacturer or his authorised representative in accordance with annex	

No.	Results of previous discussion and consultation	Comments
	III.	
204.		
205.	2. The manufacturer must establish the technical documentation described in point 3 and he or his authorised representative established within the Community must make it available to the relevant national authorities for inspection purposes for a period ending at least 10 years after the last product has been placed on the market.	
206.	If neither the manufacturer nor his authorised representative is established within the Community, the obligation to hold the EC declaration of conformity and the technical documentation at the disposal of the competent authorities shall be the responsibility of the person who places the equipment on the Community market.	
207.		
208.	3. Technical documentation must enable the conformity of the equipment to the requirements of this Directive to be assessed. It must, as far as relevant for such assessment, cover the design, manufacture and operation of the equipment. It must include:	
209.	• a general description of the equipment,	
210.	• conceptual design and manufacturing drawings and schemes of components, sub-assemblies, circuits, etc.,	
211.	• descriptions and explanations necessary for the understanding of said drawings and schemes and the operation of the equipment,	
212.	• a list of the standards applied in full or in part, and descriptions of the solutions adopted to satisfy the safety aspects of this Directive where standards have not been applied,	
213.	• results of design calculations made, examinations carried out, etc.,	
214.	• test reports.	
215.		
216.	4. The manufacturer or his authorised representative must keep a copy of the declaration of conformity with the technical documentation.	
217.		
218.	5. The manufacturer or his authorised representative must take all measures necessary in order that the manufacturing process shall ensure compliance of the manufactured products with the technical documentation referred to in point 2 and with the requirements of this Directive that apply to them.	
219.		

No.	Results of previous discussion and consultation	Comments
220	**Annex V**	
221		
222	**Simple Conformity assessment procedure**	
223	This module describes the procedure whereby the manufacturer or his authorised representative in the Community ensures and declares that benign electrical equipment satisfies the requirements of this Directive applicable to it. The manufacturer or his authorised representative established in the Community shall be responsible for the affixing of the CE marking to each piece of benign electrical equipment in accordance with Annex III and draw up an EC Declaration of Conformity.	
224	The EC Declaration of Conformity shall include the statement "This electrical equipment has been assessed by means of risk assessment as benign with respect to the hazards referred to at Article 2 of this Directive."	
225	The manufacturer or his authorised representative in the Community shall hold the EC Declaration of Conformity at the disposal of the competent authorities of Member States for a period of ten years after the date on which such electrical equipment was last manufactured.	
226	If neither the manufacturer nor his authorised representative is established within the Community, the obligation to hold the EC declaration of conformity at the disposal of the competent authorities shall be the responsibility of the person who places the electrical equipment on the Community market.	