



DPC: 22/30451242 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000

Fax: +44 (0)20 8996 7400

www.bsigroup.com

Date: 26 January 2022

Origin: International

Latest date for receipt of comments: 09 March 2022

Project No. 2022/00185

Responsible committee: CPL/61/7 Safety of electrical appliances - Heated appliance group

Interested committees:

Title: Draft BS EN 60335-2-110 Ed 2 F1 Household and similar electrical appliances - Safety. Part 2-110: Particular requirements for commercial microwave appliances with insertion or contacting applicators (Fragment 1).

Please notify the secretary if you are aware of any keywords that might assist in classifying or identifying the standard or if the content of this standard

- i) has any issues related to 3rd party IPR, patent or copyright
- ii) affects other national standard(s)
- iii) requires additional national guidance or information

WARNING: THIS IS A DRAFT AND MUST NOT BE REGARDED OR USED AS A BRITISH STANDARD. THIS DRAFT IS NOT CURRENT BEYOND 09 March 2022

This draft is issued to allow comments from interested parties; all comments will be given consideration prior to publication. No acknowledgement will normally be sent. **See overleaf for information on the submission of comments.**

No copying is allowed, in any form, without prior written permission from BSI except as permitted under the Copyright, Designs and Patent Act 1988 or for circulation within a nominating organization for briefing purposes. Electronic circulation is limited to dissemination by e-mail within such an organization by committee members.

Further copies of this draft may be purchased from BSI Shop <http://shop.bsigroup.com> or from BSI Customer Services, Tel: +44(0) 20 8996 9001 or email cservices@bsigroup.com. British, International and foreign standards are also available from BSI Customer Services.

Information on the co-operating organizations represented on the committees referenced above may be obtained from <https://standardsdevelopment.bsigroup.com/>.

Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
------------------	------------------------

1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



61B/670/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:

IEC 60335-2-110/FRAG1 ED2

DATE OF CIRCULATION:

2022-01-14

CLOSING DATE FOR VOTING:

2022-04-08

SUPERSEDES DOCUMENTS:

61B/645/CD, 61B/648A/CC

IEC SC 61B : SAFETY OF MICROWAVE APPLIANCES FOR HOUSEHOLD AND COMMERCIAL USE

SECRETARIAT:

Switzerland

SECRETARY:

Mr Rupert Steiner

OF INTEREST TO THE FOLLOWING COMMITTEES:

PROPOSED HORIZONTAL STANDARD:



Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

FUNCTIONS CONCERNED:

☐ EMC

☐ ENVIRONMENT

☐ QUALITY ASSURANCE

☒ SAFETY

☐ SUBMITTED FOR CENELEC PARALLEL VOTING

☒ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

Household and similar electrical appliances - Safety - Part 2-110: Particular requirements for commercial microwave appliances with insertion or contacting applicators (Fragment 1)

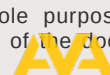
PROPOSED STABILITY DATE: 2025

NOTE FROM TC/SC OFFICERS:

This CDV is the fragment based on TC61 recommendation. The another DC to be submitted by TC61/MT23 will be discussed and may be proceeded to fragment CDV to be merged with this CDV .

There are some yellow colors and strikethrough in this CDV for easier understanding the differences to the current version.

Copyright © 2021 International Electrotechnical Commission, IEC. All rights reserved. It is permitted to download this electronic file, to make a copy and to print out the content for the sole purpose of preparing National Committee positions. You may not copy or "mirror" the file or printed version of the document, or any part of it, for any other purpose without permission in writing from IEC.



Documents
Document Sharing Hub

1 CONTENTS

2	FOREWORD	4
3	INTRODUCTION	8
4	1 Scope	9
5	2 Normative references	10
6	3 Terms and definitions	10
7	4 General requirement	14
8	5 General conditions for the tests	14
9	6 Classification	14
10	7 Marking and instructions	15
11	8 Protection against access to live parts	19
12	9 Starting of motor-operated appliances	19
13	10 Power input and current	19
14	11 Heating	19
15	12 ~~Void~~ Charging of metal-ion batteries	19
16	13 Leakage current and electric strength at operating temperature	19
17	14 Transient overvoltages	20
18	15 Moisture resistance	20
19	16 Leakage current and electric strength	20
20	17 Overload protection of transformers and associated circuits	20
21	18 Endurance	21
22	19 Abnormal operation	21
23	20 Stability and mechanical hazards	22
24	21 Mechanical strength	23
25	22 Construction	24
26	23 Internal wiring	27
27	24 Components	27
28	25 Supply connection and external flexible cords	28
29	26 Terminals for external conductors	29
30	27 Provision for earthing	29
31	28 Screws and connections	29
32	29 Clearances, creepage distances and solid insulation	30
33	30 Resistance to heat and fire	30
34	31 Resistance to rusting	30
35	32 Radiation, toxicity and similar hazards	30
36	101 Protection against accessibility to microwave-containing regions	32
37	Annex AA (informative) Rationales for the microwave barrier and associated leakage	
38	tests	41
39	Bibliography	46
40		
41	Figure 101 – Test rod for interlock concealment	34
42	Figure 102 – Arrangement for measurement of microwave leakage	35

43	Figure 103 – Construction site, overview of different applicator types and their use	36
44	Figure 104 – Large area contacting applicator without traction drive	37
45	Figure 105 – Large area contacting applicator with traction drive	38
46	Figure 106 – Insertion applicator.....	39
47	Figure 107 – Small area contacting applicator.....	40
48		
49	Table 101 – Specifications for microwave barriers	33
50		
51		

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –Part 2-110: Particular requirements for commercial
microwave appliances with insertion or contacting applicators

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

~~This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.~~

~~IEC 60335-2-110 edition 1.1 contains the first edition (2013-09) [documents 61B/477/FDIS and 61B/483/RVD] and its amendment 1 (2019-10) [documents 61B/613/CDV and 61B/637/RVC as well as 61B/614/CDV and 61B/638/RVC].~~

~~This Final version does not show where the technical content is modified by amendment 1. A separate Redline version with all changes highlighted is available in this publication.~~

105 ~~This part of~~ International Standard IEC 60335-2-110 has been prepared by subcommittee
106 SC61B: Safety of microwave appliances for household and commercial use, of IEC technical
107 committee 61: Safety of household and similar electrical appliances.

108 This second edition cancels and replaces the first edition published 2013 Amendment 1:2019.
109 This edition constitutes a technical revision.

110 This edition includes the following significant changes with respect to the first edition
111 published 2013 Amendment 1:2019.

112 – 7.1 is improved in clarity.

113 – 19.11.2 and 19.103 are improved in clarity.

114 – 28 is modified to add screw requirements.

115

116 The text of this International Standard is based on the following documents:

CDV	RVC
to be included.	to be included.

117 Full information on the voting for the approval of this International Standard can be found in
118 the report on voting indicated in the above table.

119 This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

120 A list of all parts of the IEC 60335 series, under the general title: *Household and similar*
121 *electrical appliances – Safety*, can be found on the IEC website.

122 ~~This part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its~~
123 ~~amendments. It was established on the basis of the fifth edition (2010) of that standard.~~

124 This Part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments
125 unless that edition precludes it; in that case, the latest edition that does not preclude it is used. It was
126 established on the basis of the sixth edition (2020) of that standard.

127 NOTE 1 When “Part 1” is mentioned in this standard, it refers to IEC 60335-1.

128 This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to
129 convert that publication into the IEC standard: Safety requirements for commercial microwave
130 appliances with insertion or contacting applicators.

131 When a particular subclause of Part 1 is not mentioned in this part 2, that subclause applies
132 as far as is reasonable. When this standard states “addition”, “modification” or “replacement”,
133 the relevant text in Part 1 is to be adapted accordingly.

134 NOTE 2 The following numbering system is used:

135 – subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;

136 – unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including
137 those in a replaced clause or subclause;

138 – additional annexes are lettered AA, BB, etc.

139 NOTE 3 The following print types are used:

140 – requirements: in roman type;

141 – *test specifications: in italic type;*

142 – notes: in small roman type.

143 Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the
144 associated noun are also in **bold**.

145 The committee has decided that the contents of this document will remain unchanged until the
146 stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related
147 to the specific publication. At this date, the publication will be

- 148 • reconfirmed,
- 149 • withdrawn,
- 150 • replaced by a revised edition, or
- 151 • amended.

152 NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing
153 organizations can need a transitional period following publication of a new, amended or revised IEC publication in
154 which to make products in accordance with the new requirements and to equip themselves for conducting new or
155 revised tests.

156 It is the recommendation of the committee that the content of this publication be adopted for implementation
157 nationally not earlier than 12 months or later than 36 months from the date of publication.

158 ~~A list of all parts of the IEC 60335 series, under the general title: Household and similar~~
159 ~~electrical appliances — Safety, can be found on the IEC website.~~

160

161 ~~The committee has decided that the contents of the base publication and its amendment will~~
162 ~~remain unchanged until the stability date indicated on the IEC web site under~~
163 ~~"http://webstore.iec.ch" in the data related to the specific publication. At this date, the~~
164 ~~publication will be~~

165 ~~• reconfirmed,~~

166 ~~• withdrawn,~~

167 ~~• replaced by a revised edition, or~~

168 ~~• amended.~~

169 ~~A bilingual version of this publication may be issued at a later date.~~

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

170

171

172

INTRODUCTION

173 It has been assumed in the drafting of this International Standard that the execution of its
174 provisions is entrusted to appropriately qualified and experienced persons.

175 This standard recognizes the internationally accepted level of protection against hazards such
176 as electrical, mechanical, thermal, fire and radiation of appliances when operated as in
177 normal use taking into account the manufacturer's instructions. It also covers abnormal
178 situations that can be expected in practice and takes into account the way in which
179 electromagnetic phenomena can affect the safe operation of appliances.

180 This standard takes into account the requirements of IEC 60364 as far as possible so that
181 there is compatibility with the wiring rules when the appliance is connected to the supply
182 mains. However, national wiring rules may differ.

183 If an appliance within the scope of this standard also incorporates functions that are covered
184 by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as
185 far as is reasonable. If applicable, the influence of one function on the other is taken into
186 account.

187 When a part 2 standard does not include additional requirements to cover hazards dealt with
188 in Part 1, Part 1 applies.

189 NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is
190 not necessary to specify particular requirements for the appliance in question over and above the general
191 requirements.

192 This standard is a product family standard dealing with the safety of appliances and takes
193 precedence over horizontal and generic standards covering the same subject.

194 NOTE 2 Horizontal and generic standards covering a hazard are not applicable since they have been taken into
195 consideration when developing the general and particular requirements for the IEC 60335 series of standards. For
196 example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as
197 ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 standards.

198 An appliance that complies with the text of this standard will not necessarily be considered to
199 comply with the safety principles of the standard if, when examined and tested, it is found to
200 have other features which impair the level of safety covered by these requirements.

201 An appliance employing materials or having forms of construction differing from those detailed
202 in the requirements of this standard may be examined and tested according to the intent of
203 the requirements and, if found to be substantially equivalent, may be considered to comply
204 with the standard.

205

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-110: Particular requirements for commercial microwave appliances with insertion or contacting applicators

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of microwave appliances intended for commercial use, their **rated voltage** being not more than 250 V for single-phase appliances connected between one phase and neutral and 480 V for other appliances.

In general, this standard does not take into account

- persons (including children) whose
 - physical, sensory or mental capabilities; or
 - lack of experience and knowledgeprevents them from using the appliance safely without supervision or instruction;
- children playing with the appliance.

Appliances covered by this standard incorporate an open-ended **applicator** (as example an overview is given in Figure 103) for treatment of the **load**. They are divided into three types:

- with **insertion applicator**, typically for moisture removal by insertion into holes in floors, walls or ceilings (an example is given in Figure 106);
- with **large area contacting applicator**, typically for drying of floors, walls or ceilings (examples are given in Figure 104 and Figure 105);
- with **small area contacting applicator**, typically for paint removal and spot-heating (an example is given in Figure 107).

NOTE 101 Appliances with **insertion applicator** and with **large area contacting applicator** are **portable appliances**. Appliances with **small area contacting applicator** are **handheld appliances**.

NOTE 102 Appliances that use non-electrical energy are within the scope of this standard. The microwave-related portion is considered **motor-operated**.

NOTE 103 Attention is drawn to the fact that

- these appliances can radiate microwave energy outside a **restricted area** where they are used. The additional requirements specified by national authorities responsible for the protection for non-ionising radiation that the limit of power flux density is 10 W/m², averaged over any time period of 6 min, outside this **restricted area** is taken into consideration in this standard;
- these appliances are intended to exclusively treat the **load in normal operation**, i.e. this standard does not apply to appliances or systems employing free space microwave propagation;
- for appliances intended to be used in tropical countries, special requirements can be necessary;
- in many countries, additional requirements are specified by the national health authorities, and national authorities responsible for the protection of labour and for non-ionising radiation protection.

NOTE 104 This standard does not apply to

- household microwave ovens, including combination microwave ovens (IEC 60335-2-25);
- commercial microwave ovens with a cavity door, commercial combination microwave ovens with a cavity door and commercial microwave ovens without a cavity door and with transportation means (IEC 60335-2-90);
- industrial microwave heating equipment (IEC 60519-6);
- appliances for medical purposes (IEC 60601-1);

- 253 – appliances and equipment for laboratory use (series of IEC 61010);
254 – appliances intended to be used in locations where special conditions prevail, such as the presence of a
255 corrosive or explosive atmosphere (dust, vapour or gas).

256 NOTE 105 Some of the specifications and tests in this standard are not applicable for other than 2 450 MHz
257 appliances.

258 2 Normative references

259 This clause of Part 1 is applicable except as follows.

260 *Addition:*

261 IEC 60335-2-90, *Household and similar electrical appliances – Safety – Part 2-90: Particular*
262 *requirements for commercial microwave ovens*

263 ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel – Part 1: Bolts,*
264 *screws and studs with specified property classes – Coarse thread and fine pitch thread*

265
266 ISO 3506-1, *Mechanical properties of corrosion-resistant stainless steel fasteners – Part 1: Bolts,*
267 *screws and studs*

268
269 ISO 3506-2, *Mechanical properties of corrosion-resistant stainless steel fasteners – Part 2: Nuts*

270
271 ISO 3506-3, *Mechanical properties of corrosion-resistant stainless steel fasteners – Part 3: Set screws*
272 *and similar fasteners not under tensile stress*

273
274 ISO 3506-4, *Mechanical properties of corrosion-resistant stainless steel fasteners – Part 4: Tapping*
275 *screws*

276 ISO 3864-1, *Graphical symbols – Safety colours and safety signs – Part 1: Design principles*
277 *for safety signs and safety markings*

278 ISO 7010, *Graphical symbols – Safety colours and safety signs – Registered safety signs*

279 3 Terms and definitions

280 This clause of Part 1 is applicable except as follows.

281 3.1.7 *Addition:*

282 Note 101 to entry: The **rated frequency** is the input frequency.

283 3.1.9 *Replacement:*

284 **normal operation**

285 heating operation of the **appliance** under the following conditions:

286 The **appliance** is operated according to the manufacturer's instructions for **intended use**.
287 However, using a typical load for **intended use** may be impractical, since it may be part of a
288 building, unless the manufacturer makes useful and realistic such **loads** available for the tests.
289 If that is not the case, the appliance is operated under the following conditions:

290 The initial temperature of the test load which is used for microwave energy absorption shall
291 be $(20 \pm 5) ^\circ\text{C}$.

292 The highest generator power settings are to be used.

293 Appliances with an **insertion applicator** for moisture removal are operated by insertion into
294 holes in floor, wall or ceiling structures under the following conditions:

a) The test load consists of a metal tank filled with water, having an open top water surface exceeding that of the horizontal dimensions of the appliance by at least 70 mm on all sides and having a water column height of at least 150 mm plus the length of the longest insertion distance of the **insertion applicator**. At the top sides of the tank there are horizontal supports of a **microwave-transparent** material, with a suitable opening for the applicator antenna. The water level is adjusted so that the distance from the housing of the appliance to the test load is the same as in its **intended use**.

Note 101 to entry: If it is obvious that good microwave impedance matching of the **insertion applicator** can be obtained only if the hole into which it is inserted is not water-filled, a sleeve or similar of a highly **microwave transparent** material such as PTFE is used around the **insertion applicator**. If wave propagation in the axial direction occurs in the test set-up and the manufacturer can show that it is not possible in actual use, or monitoring devices then shut down the **insertion applicator**, a thin-wall plastic tube with inner diameter corresponding to the maximum hole diameter according to the manufacturer's specification can be used.

b) Appliances with **large area contacting applicator** for drying of floor, wall or ceiling structures are operated under the following conditions: the test load consists of a metal tank filled with water, having an open top water surface exceeding that of the horizontal dimensions of the appliance by at least 70 mm on all sides and having a water column height of at least 150 mm. At the top of two opposite tank sides there are horizontal supports of a **microwave-transparent** material, extending just so far inwards that the **traction drive** rests on the support. The water level is adjusted so that the distance from the **applicator** to the test load is the same as in its **intended use**. The proper reversal function of the **traction drive** is tested under the following conditions: the appliance is operated on a horizontal plywood surface with a thickness of 20 mm and an area sufficient to allow back and forth movement between blocks representing walls.

Note 102 to entry: If needed for representative operation of the appliance, the horizontal supports are extended as to activate the mechanical **microwave interlocks**.

Appliances with **small area contacting applicator** for paint removal and spot-heating are operated under the following conditions:

The test load consists of a grinding wheel or grinding block made of fine-grained silicon carbide at least 15 mm in thickness, and its length and width exceeding the corresponding dimensions of the applicator opening by at least 30 mm; however this test load shall be so large that it can be air-cooled from the underside without the appliance being influenced.

3.101

microwave appliance with insertion, large or small area contacting applicator

commercial appliance using electromagnetic energy in one or several of the ISM frequency bands between 300 MHz and 30 GHz, for supplying energy to an external **load** which is heated so that a resulting process of drying, moisture transport which may result in forces due to formation of steam, decomposition or chemical modification, melting, or termination of organisms such as bacteria or fungus occurs

Note 1 to entry: ISM frequency bands are the electromagnetic frequencies established by the ITU and reproduced in CISPR 11.

Note 2 to entry: Food and beverages are not **loads** in the meaning of this standard.

3.102

applicator

structure which applies the microwave energy to the **load**

3.103

load

object to be treated into which the **applicator** is introduced or put in close position to

3.104

microwave transparency

property of a material having negligible absorption and reflection of microwaves

Note 1 to entry: The relative permittivity of a **microwave transparent** material is less than 7 and the relative loss factor is less than 0,015.

348 **3.105**
349 **insertion applicator**
350 **applicator** for insertion into the **load**, in which all **available microwave power** is intended to
351 be absorbed

352 **3.106**
353 **large area contacting applicator**
354 **applicator** with a metallic enclosure, having at least one geometric non-metallic opening
355 through which microwave energy is applied to a closely located external **load** in which all
356 **available microwave power** is intended to be absorbed

357 **3.107**
358 **small area contacting applicator**
359 **applicator** with a metallic enclosure, having at least one geometric non-metallic opening or
360 appropriate device through which microwave energy is applied to a very closely located
361 external **load** in which all **rated microwave power** is intended to be absorbed

362 **3.108**
363 **rated microwave power output**
364 microwave power output assigned to the appliance by the manufacturer

365 Note 1 to entry: This can be lower than the **available microwave power**, due to intentional microwave power
366 losses in microwave absorbers (see Note in 101.1) and coaxial cables acting for protection of the microwave
367 generator of **small area contacting applicators** (see 22.101).

368 **3.109**
369 **available microwave power**
370 the microwave generator nominal output under impedance matched condition which is
371 obtained by the generator manufacturer specification and measurement of its electrical input
372 to the generator in the appliance during the first 10 s of operation at maximum power

373 Note 1 to entry: Magnetrons will typically have a stationary power output 3 s after energising.

374 **3.110**
375 **instructed person**
376 person who is sufficiently instructed and monitored to know how to avoid any danger caused
377 by the operation of a microwave appliance with **insertion applicator**, **large area contacting**
378 **applicator**, or **small area contacting applicator**

379 **3.111**
380 **skilled person**
381 person with suitable professional education, knowledge and experience to discern and to
382 avoid any danger caused by the operation of a microwave appliance with **insertion**
383 **applicator**, **large area contacting applicator**, or **small area contacting applicator**

384 **3.112**
385 **ordinary person**
386 person who is neither a **skilled person** nor an **instructed person**

387 **3.113**
388 **traction drive**
389 means or system used to accomplish movement of an appliance with **large area contacting**
390 **applicator** on a floor

391 **3.114**
392 **microwave enclosure**
393 overall structure that is intended to confine the microwave energy

394 Note 1 to entry: Barriers mounted outside the **microwave enclosure** are not considered a part of it.

3.115

microwave barrier

microwave transparent part of the microwave appliance that is mounted outside the **microwave enclosure** for limiting access into it and can only be removed with the aid of **tools**

Note 1 to entry: A **microwave barrier** can be mounted between the **microwave enclosure** and the external cover of the appliance.

Note 2 to entry: Devices such as an array of metal chains or hinged metal plates at the periphery of the opening of an **applicator** intended to reduce microwave leakage are not considered **microwave barriers**.

Note 3 to entry: **Microwave barriers** cannot be hinged or flexed.

3.116

microwave guard

constructive part of the appliance that is mounted outside or at the **microwave enclosure** for reducing microwave leakage by shielding and/or absorption and can only be removed with the aid of **tools**

Note 1 to entry: **Microwave guards** can move or open when the **applicator** is brought into contact with the **load**.

Note 2 to entry: Devices such as an array of metal chains or hinged metal plates at the periphery of the opening of an **applicator** intended to reduce microwave leakage are considered **microwave guards**.

3.117

maintenance door

constructive part of the appliance that can be opened or removed with the aid of **tools** to get access for service and repair

3.118

microwave interlock

device or system that prevents the operation of the microwave generator if conditions of excessive microwave leakage occur or are likely to occur

Note 1 to entry: Examples of **microwave interlock** are switches which stop the microwave power when a contacting **applicator** is lifted up or an **insertion applicator** is removed from its **load** during operation, and an integral leakage monitor which does the same if there is insufficient proximity between an **applicator** and the **load** or if an attempt is made to start the appliance without a **load**.

3.119

intended use

any use of the appliance which is reasonably foreseeable, as described in the user instructions, and which is consistent with such activities as operating, starting, stopping, connecting to or disconnecting from the supply mains

3.120

control

any control device requiring the operator's actuation to perform specific functions

3.121

viewing opening

opening into the **applicator** through which the treatment can be visually monitored

3.122

restricted area

the space where the operation of the equipment takes place, plus any area outside this where the exposure level from the equipment may exceed 10 W/m², averaged over any 6 min

Note 1 to entry: The **restricted area** is determined by measuring the microwave leakage through floor, wall or ceiling structures of the treatment zone. The thickness of the **load** in the radially outgoing direction from the **applicator** is considered only if the **load** is accessible from behind for microwave leakage measurements in **normal operation**.