

Delegated Regulation (EU) 665/2013 of 3 May 2013 supplementing Directive 2010/30/EU with regard to energy labelling of vacuum cleaners

Incorporated and adapted by Ministerial Council Decision 2014/02/MC-EnC of 23 September 2014 adapting certain Delegated Regulations on energy related products.

*The adaptations made by Ministerial Council Decision 2014/02/MC-EnC are highlighted in **bold and blue**.*

Whereas:

(1) Directive 2010/30/EU requires the Commission to adopt delegated acts as regards the labelling of energy related products representing significant potential for energy savings and presenting a wide disparity in performance levels with equivalent functionality.

(2) The energy used by vacuum cleaners accounts for a significant part of total energy demand in the Union. The scope for reducing the energy consumption of vacuum cleaners is substantial.

(3) Wet, wet and dry, robot, industrial, central and battery operated vacuum cleaners and floor polishers and outdoor vacuums have particular characteristics and should therefore be exempted from the scope of this Regulation.

(4) The information provided on the label should be obtained through reliable, accurate and reproducible measurement procedures, which take into account the recognised state of the art measurement methods including, where available, harmonised standards adopted by the European standardisation organisations, as listed in Annex I to Regulation (EU) 1025/2012 of the European Parliament and of the Council of 25 October 2012 on European standardisation¹.

(5) This Regulation should specify a uniform design and content for the label for vacuum cleaners.

(6) In addition, this Regulation should specify requirements as to the technical documentation and the fiche for vacuum cleaners.

(7) Moreover, this Regulation should specify requirements as to the information to be provided for any form of distance selling, advertisements and technical promotional materials of vacuum cleaners.

(8) It is appropriate to provide for a review of the provisions of this Regulation taking into account technological progress,

HAS ADOPTED THIS REGULATION:

Article 1

Subject matter and scope

1. This Regulation establishes requirements for the labelling and the provision of supplementary product information for electric mains-operated vacuum cleaners, including hybrid vacuum cleaners.

2. This Regulation shall not apply to:

- (a) wet, wet and dry, battery operated, robot, industrial, or central vacuum cleaners;
- (b) floor polishers;
- (c) outdoor vacuums.

¹ OJ L 316, 14.11.2012, p. 12.

Article 2

Definitions

In addition to the definitions set out in Article 2 of Directive 2010/30/EU, the following definitions shall apply for the purpose of this Regulation:

- (1) 'vacuum cleaner' means an appliance that removes soil from the surface to be cleaned by an airflow created by underpressure developed within the unit;
- (2) 'hybrid vacuum cleaner' means a vacuum cleaner that can be powered by both electric mains and batteries;
- (3) 'wet vacuum cleaner' means a vacuum cleaner that removes dry and/or wet material (soil) from the surface by applying water-based detergent or steam to the surface to be cleaned, and removing it, and the soil by an airflow created by underpressure developed within the unit, including types commonly known as spray-extraction vacuum cleaners;
- (4) 'wet and dry vacuum cleaner' means a vacuum cleaner designed to remove a volume of more than 2,5 litres of liquid, in combination with the functionality of a dry vacuum cleaner;
- (5) 'dry vacuum cleaner' means a vacuum cleaner designed to remove soil that is principally dry (dust, fibre, threads), including types equipped with a battery operated active nozzle;
- (6) 'battery operated active nozzle' means a cleaning head provided with an agitation device powered by batteries to assist dirt removal;
- (7) 'battery operated vacuum cleaner' means a vacuum cleaner powered only by batteries;
- (8) 'robot vacuum cleaner' means a battery operated vacuum cleaner that is capable of operating without human intervention within a defined perimeter, consisting of a mobile part and a docking station and /or other accessories to assist its operation;
- (9) 'industrial vacuum cleaner' means a vacuum cleaner designed to be part of a production process, designed for removing hazardous material, designed for removing heavy dust from building, foundry, mining or food industry, part of an industrial machine or tool and/or a commercial vacuum cleaner with a head width exceeding 0,50 m;
- (10) 'commercial vacuum cleaner' means a vacuum cleaner for professional housekeeping purposes and intended to be used by laymen, cleaning staff or contracting cleaners in office, shop, hospital and hotel environments, declared by the manufacturer as such in its Declaration of Conformity pertaining to Directive 2006/42/EC of the European Parliament and of the Council²;
- (11) 'central vacuum cleaner' means a vacuum cleaner with a fixed (not movable) underpressure source location and the hose connections located at fixed positions in the building;
- (12) 'floor polisher' means an electrical appliance that is designed to protect, smoothen and/or render shiny certain types of floors, usually operated in combination with a polishing means to be rubbed on the floor by the appliance and commonly also equipped with the auxiliary functionality of a vacuum cleaner;
- (13) 'outdoor vacuum' means an appliance that is designed for use outdoors to collect debris such as grass clippings and leaves into a collector by means of an airflow created by underpressure developed within the unit and which may contain a shredding device and may also be able to perform

² OJ L 157, 9.6.2006, p. 24.

as a blower;

(14) 'full size battery operated vacuum cleaner' means a battery operated vacuum cleaner which when fully charged, can clean 15 m² of floor area by applying 2 double strokes to each part of the floor without recharge;

(15) 'water filter vacuum cleaner' means a dry vacuum cleaner that uses more than 0,5 litre of water as the main filter medium, whereby the suction air is forced through the water entrapping the removed dry material as it passes through;

(16) 'household vacuum cleaner' means a vacuum cleaner intended for household or domestic use, declared by the manufacturer as such in its Declaration of Conformity pertaining to Directive 2006/95/EC of the European Parliament and of the Council³;

(17) 'general purpose vacuum cleaner' means a vacuum cleaner supplied with a fixed or at least one detachable nozzle designed for cleaning both carpets and hard floors or supplied with both at least one detachable nozzle designed specifically for cleaning carpets and at least one detachable nozzle for cleaning hard floors;

(18) 'hard floor vacuum cleaner' means a vacuum cleaner supplied with a fixed nozzle designed specifically for cleaning hard floors, or supplied solely with one or more detachable nozzles designed specifically for cleaning hard floors;

(19) 'carpet vacuum cleaner' means a vacuum cleaner supplied with a fixed nozzle designed specifically for cleaning carpets, or supplied solely with one or more detachable nozzles designed specifically for cleaning carpets;

(20) 'equivalent vacuum cleaner' means a model of vacuum cleaner placed on the market with the same input power, annual energy consumption, dust pick up on carpet and hard floor, dust re-emission and sound power level as another model of vacuum cleaner placed on the market under a different commercial code number by the same manufacturer.

Article 3

Responsibilities of suppliers and timetable

1. Suppliers shall ensure that from **1 January 2016**:

- (a) each vacuum cleaner is supplied with a printed label in the format and containing the information set out in Annex II;
- (b) a product fiche, as set out in Annex III, is made available;
- (c) the technical documentation as set out in Annex IV is made available on request to the authorities of the **Contracting Parties** and to the Commission;
- (d) any advertisement for a specific model of vacuum cleaner contains the energy efficiency class, if the advertisement discloses energy-related or price information;
- (e) any technical promotional material concerning a specific model of vacuum cleaner which describes its specific technical parameters includes the energy efficiency class of that model.

2. The format of the label set out in Annex II shall be applied according to the following timetable:

- (a) for vacuum cleaners placed on the market from **1 January 2016** labels shall be in accordance

³ OJ L 374, 27.12.2006, p. 10.

with label 1 of Annex II;

(b) for vacuum cleaners placed on the market from 1 September 2017 labels shall be in accordance with label 2 of Annex II.

Article 4

Responsibilities of dealers

Dealers shall ensure that from **1 January 2016**:

- (a) each model presented at the point of sale bears the label provided by suppliers in accordance with Article 3 displayed on the outside of the appliance or hung on it, in such a way as to be clearly visible;
- (b) vacuum cleaners offered for sale, hire or hire-purchase where the end-user cannot be expected to see the product displayed, as specified in Article 7 of Directive 2010/30/EU, are marketed with the information provided by suppliers in accordance with Annex V to this Regulation;
- (c) any advertisement for a specific model of vacuum cleaner contains a reference to the energy efficiency class, if the advertisement discloses energy-related or price information;
- (d) any technical promotional material concerning a specific model of vacuum cleaner which describes its specific technical parameters includes a reference to the energy efficiency class of the model.

Article 5

Measurement methods

The information to be provided under Articles 3 and 4 shall be obtained by reliable, accurate and reproducible measurement and calculations methods, which take into account the recognised state-of-the-art measurement and calculation methods, as set out in Annex VI.

Article 6

Verification procedure for market surveillance purposes

Contracting Parties shall apply the procedure set out in Annex VII when assessing the conformity of the declared energy efficiency class, cleaning performance classes, dust re-emission class, annual energy consumption and sound power level.

Article 7

Revision

...⁴

⁴ Not applicable

Article 8

Transitional provision

This Regulation shall apply to water filter vacuum cleaners from 1 September 2017.

Article 9

Entry into force

This Regulation shall apply from 1 January 2016, except for the case specified in Article 8.⁵

The Secretariat shall monitor and review the implementation of the Delegated Regulations referred to in Article 1 in the Contracting Parties. Contracting Parties shall communicate to the Energy Community Secretariat the text of the main provisions of national law which they adopt in the field covered by these Delegated Regulations, in the next year of the deadline for the overall implementation⁶.

This Decision (2014/02/MC-EnC) enters into force upon its adoption (23 September 2014) and it is addressed to the Contracting Parties⁷.

⁵ The text displayed here corresponds to Article 2(2) of Decision 2014/02/MC-EnC

⁶ The text displayed here corresponds to Article 2(3) of Decision 2014/02/MC-EnC

⁷ The text displayed here corresponds to Article 3(1) of Decision 2014/02/MC-EnC

ANNEX I

Energy efficiency, cleaning performance and dust re-emission classes

1. ENERGY EFFICIENCY CLASSES

The energy efficiency class of a vacuum cleaner shall be determined in accordance with its annual energy consumption as set out in Table 1. The annual energy consumption of a vacuum cleaner shall be determined in accordance with Annex VI.

Table 1

Energy efficiency classes

Energy Efficiency Class	Annual energy consumption (AE) [kWh/yr]	
	Label 1	Label 2
A+++	n/a	$AE \leq 10,0$
A++	n/a	$10,0 < AE \leq 16,0$
A+	n/a	$16,0 < AE \leq 22,0$
A	$AE \leq 28,0$	$22,0 < AE \leq 28,0$
B	$28,0 < AE \leq 34,0$	$28,0 < AE \leq 34,0$
C	$34,0 < AE \leq 40,0$	$34,0 < AE \leq 40,0$
D	$40,0 < AE \leq 46,0$	$AE > 40,0$
E	$46,0 < AE \leq 52,0$	n/a
F	$52,0 < AE \leq 58,0$	n/a
G	$AE > 58,0$	n/a

2. CLEANING PERFORMANCE CLASSES

The cleaning performance class of a vacuum cleaner shall be determined in accordance with its dust pick up (*dpu*) as set out in Table 2. The dust pick up of a vacuum cleaner shall be determined in accordance with Annex VI.

Table 2

Cleaning performance classes

Cleaning performance class	Dust pick up on carpet (dpu_c)	Dust pick up on hard floor (dpu_{hf})
A	$dpu_c \geq 0,91$	$dpu_{hf} \geq 1,11$
B	$0,87 \leq dpu_c < 0,91$	$1,08 \leq dpu_{hf} < 1,11$
C	$0,83 \leq dpu_c < 0,87$	$1,05 \leq dpu_{hf} < 1,08$
D	$0,79 \leq dpu_c < 0,83$	$1,02 \leq dpu_{hf} < 1,05$
E	$0,75 \leq dpu_c < 0,79$	$0,99 \leq dpu_{hf} < 1,02$
F	$0,71 \leq dpu_c < 0,75$	$0,96 \leq dpu_{hf} < 0,99$
G	$dpu_c < 0,71$	$dpu_{hf} < 0,96$

3. DUST RE-EMISSION

The dust re-emission class of a vacuum cleaner shall be determined in accordance with its dust re-emission as set out in Table 3. The dust re-emission of a vacuum cleaner shall be determined in accordance with Annex VI.

Table 3

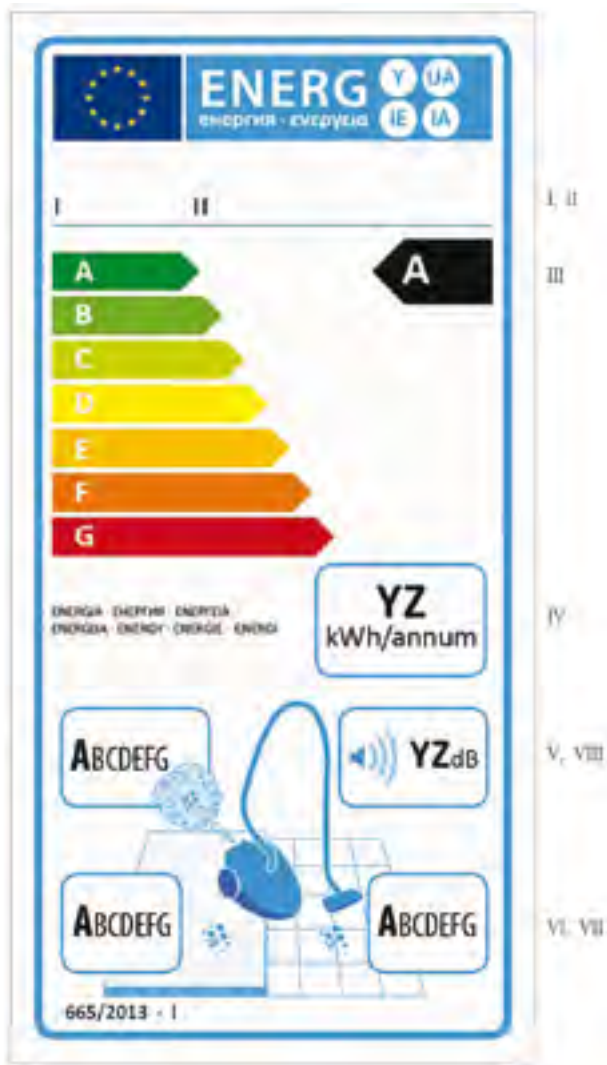
Dust re-emission classes

Dust re-emission class	Dust re-emission (dre)
A	$dre \leq 0,02 \%$
B	$0,02 \% < dre \leq 0,08 \%$
C	$0,08 \% < dre \leq 0,20 \%$
D	$0,20 \% < dre \leq 0,35 \%$
E	$0,35 \% < dre \leq 0,60 \%$
F	$0,60 \% < dre \leq 1,00 \%$
G	$dre > 1,00 \%$

ANNEX II The label

1. LABEL 1

1.1. General purpose vacuum cleaners



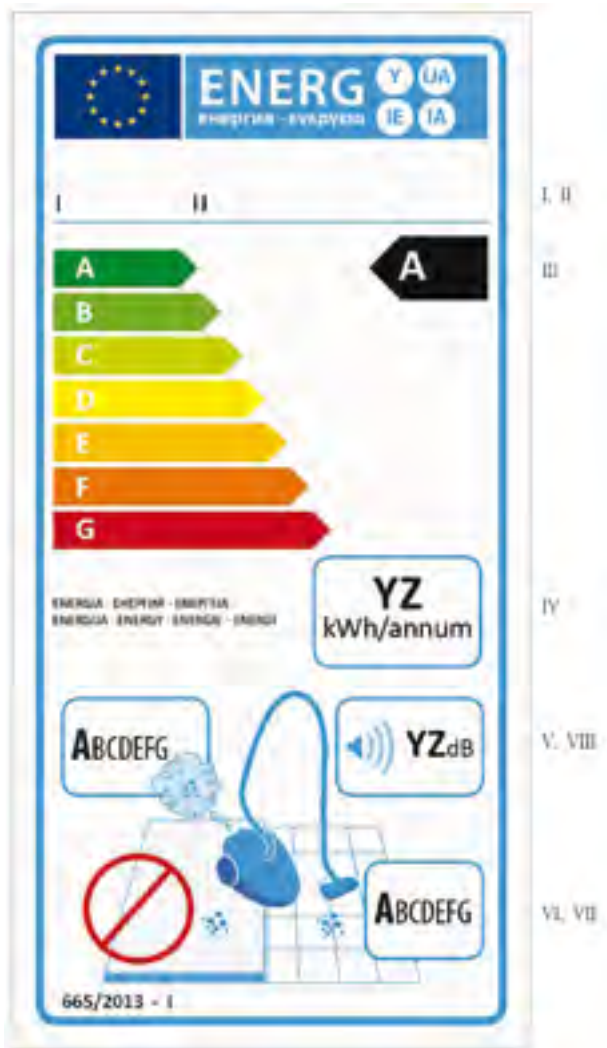
The following information shall be included in the label:

- I. Supplier's name or trade mark;
- II. Supplier's model identifier, where 'model identifier' means the code, usually alphanumeric, which distinguishes a specific vacuum cleaner model from other models with the same trade mark or supplier's name;
- III. The energy efficiency class as defined in Annex I; the head of the arrow containing the energy efficiency class of the vacuum cleaner shall be placed at the same height as the head of the arrow of the relevant energy efficiency class;
- IV. Average annual energy consumption, as defined in Annex VI;
- V. Dust re-emission class, determined in accordance with Annex I;
- VI. Carpet cleaning performance class, determined in accordance with Annex I;
- VII. Hard floor cleaning performance class, determined in accordance with Annex I;
- VIII. Sound power level, as defined in Annex VI.

The design of the labels shall be in accordance with point 4.1 of this Annex. By way of derogation, where a model has been awarded an 'EU eco-label' under Regulation (EC) No 66/2010 of the European Parliament and of the Council⁸, a copy of the EU eco-label may be added.

⁸ OJ L 27, 30.1.2010, p. 1.

1.2. Hard floor vacuum cleaners

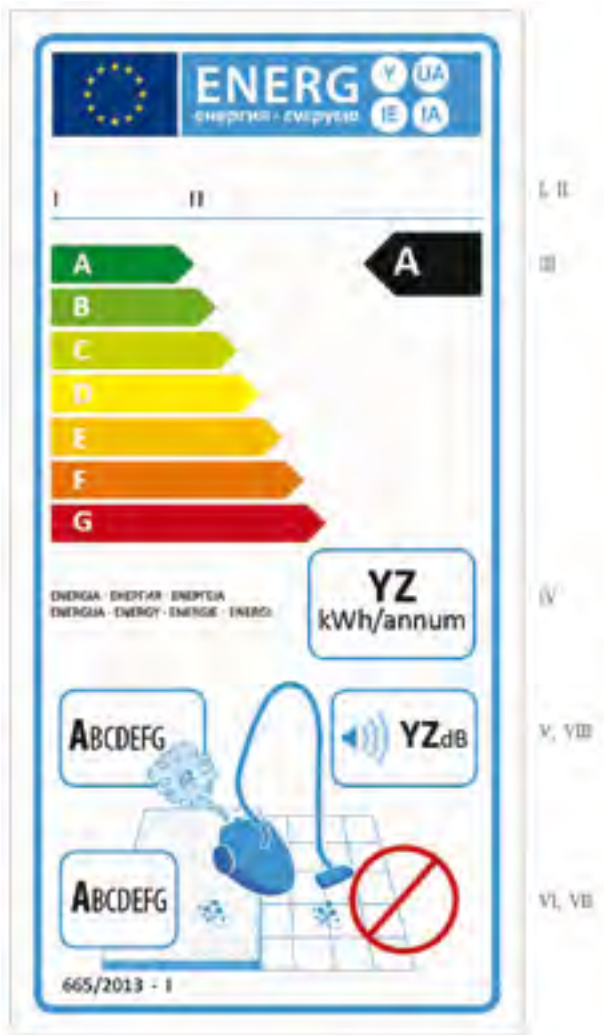


The following information shall be included in the label:

- I. Supplier's name or trade mark;
- II. Supplier's model identifier, where 'model identifier' means the code, usually alphanumeric, which distinguishes a specific vacuum cleaner model from other models with the same trade mark or supplier's name;
- III. The energy efficiency class as defined in Annex I; the head of the arrow containing the energy efficiency class of the vacuum cleaner shall be placed at the same height as the head of the arrow of the relevant energy efficiency class;
- IV. Average annual energy consumption, as defined in Annex VI;
- V. Dust re-emission class, determined in accordance with Annex I;
- VI. Exclusion sign;
- VII. Hard floor cleaning performance class, determined in accordance with Annex I;
- VIII. Sound power level, as defined in Annex VI.

The design of the labels shall be in accordance with point 4.2 of this Annex. By way of derogation, where a model has been awarded an 'EU eco-label' under Regulation (EC) No 66/2010 of the European Parliament and of the Council, a copy of the EU eco-label may be added.

1.3. Carpet vacuum cleaners



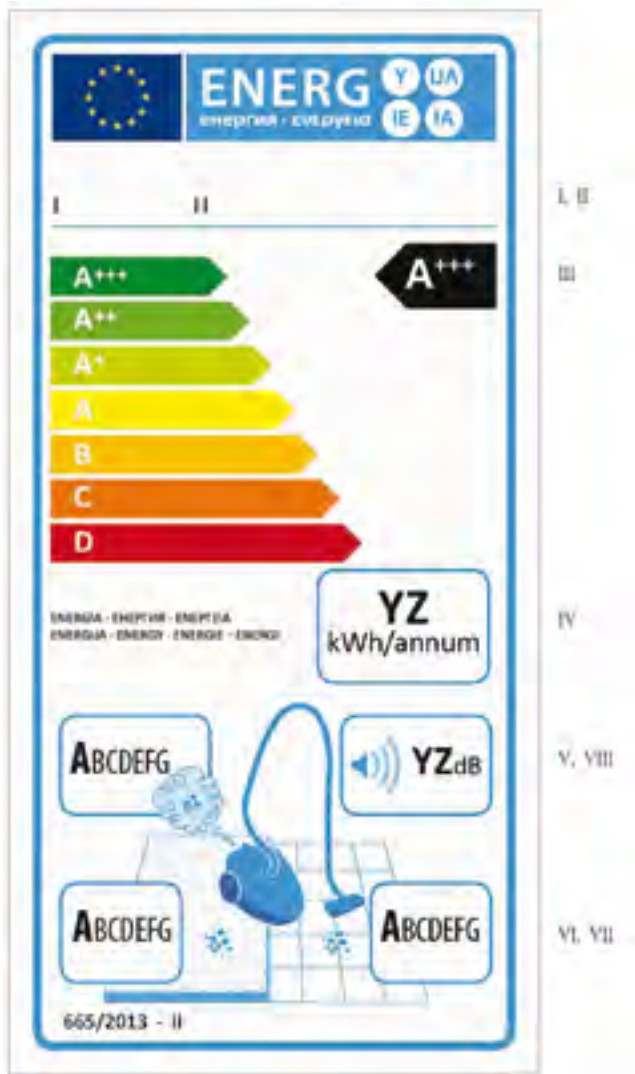
The following information shall be included in the label:

- I. Supplier's name or trade mark;
- II. Supplier's model identifier, where 'model identifier' means the code, usually alphanumeric, which distinguishes a specific vacuum cleaner model from other models with the same trade mark or supplier's name;
- III. The energy efficiency class as defined in Annex I; the head of the arrow containing the energy efficiency class of the vacuum cleaner shall be placed at the same height as the head of the arrow of the relevant energy efficiency class;
- IV. Average annual energy consumption, as defined in Annex VI;
- V. Dust re-emission class, determined in accordance with Annex I;
- VI. Carpet cleaning performance class, determined in accordance with Annex I.
- VII. Exclusion sign;
- VIII. Sound power level, as defined in Annex VI.

The design of the labels shall be in accordance with point 4.3 of this Annex. By way of derogation, where a model has been awarded an 'EU eco-label' under Regulation (EC) No 66/2010 of the European Parliament and of the Council, a copy of the EU eco-label may be added.

2. LABEL 2

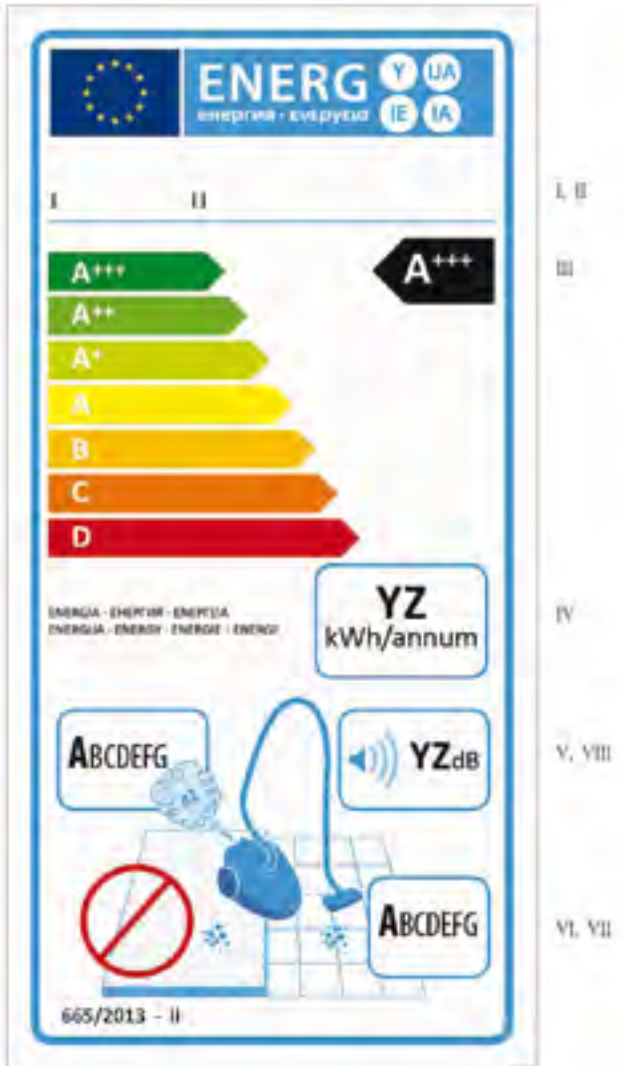
2.1. General purpose vacuum cleaners



The information listed in point 1.1 shall be included in this label.

The design of the labels shall be in accordance with point 4.1 of this Annex. By way of derogation, where a model has been awarded an 'EU eco-label' under Regulation (EC) No 66/2010 of the European Parliament and of the Council, a copy of the EU eco-label may be added.

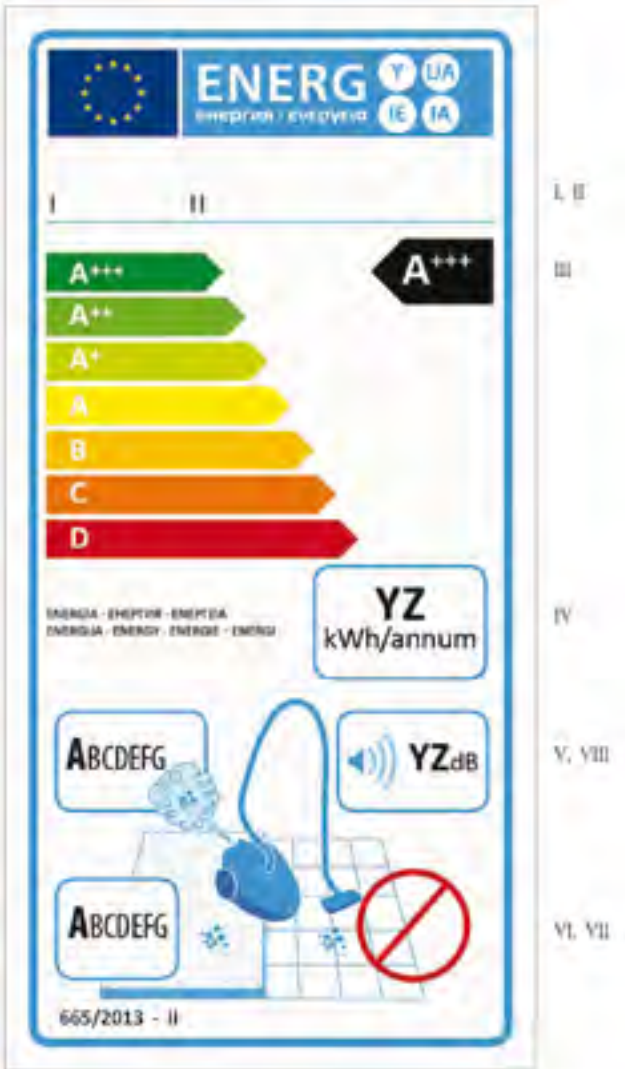
2.2. Hard floor vacuum cleaners



The information listed in point 1.2 shall be included in this label.

The design of the labels shall be in accordance with point 4.2 of this Annex. By way of derogation, where a model has been awarded an 'EU eco-label' under Regulation (EC) No 66/2010 of the European Parliament and of the Council, a copy of the EU eco-label may be added.

2.3. Carpet vacuum cleaners

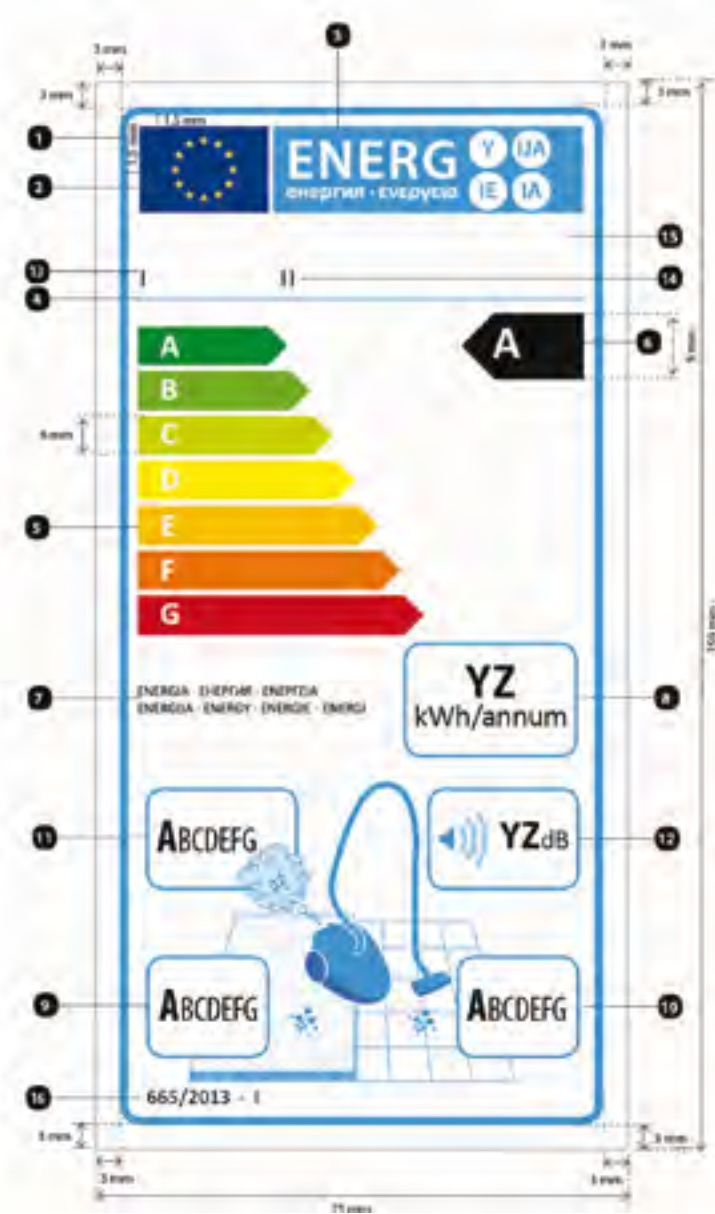


The information listed in point 1.3 shall be included in this label.

The design of the labels shall be in accordance with point 4.3 of this Annex. By way of derogation, where a model has been awarded an 'EU eco-label' under Regulation (EC) No 66/2010 of the European Parliament and of the Council, a copy of the EU eco-label may be added.

3. LABEL DESIGN

3.1. The design of the labels for general purpose vacuum cleaners shall be the following:



Whereby:

(a) The label shall be at least 75 mm wide and 150 mm high. Where the label is printed in a larger format, its content shall nevertheless remain proportionate to the specifications above.

(b) The background shall be white.

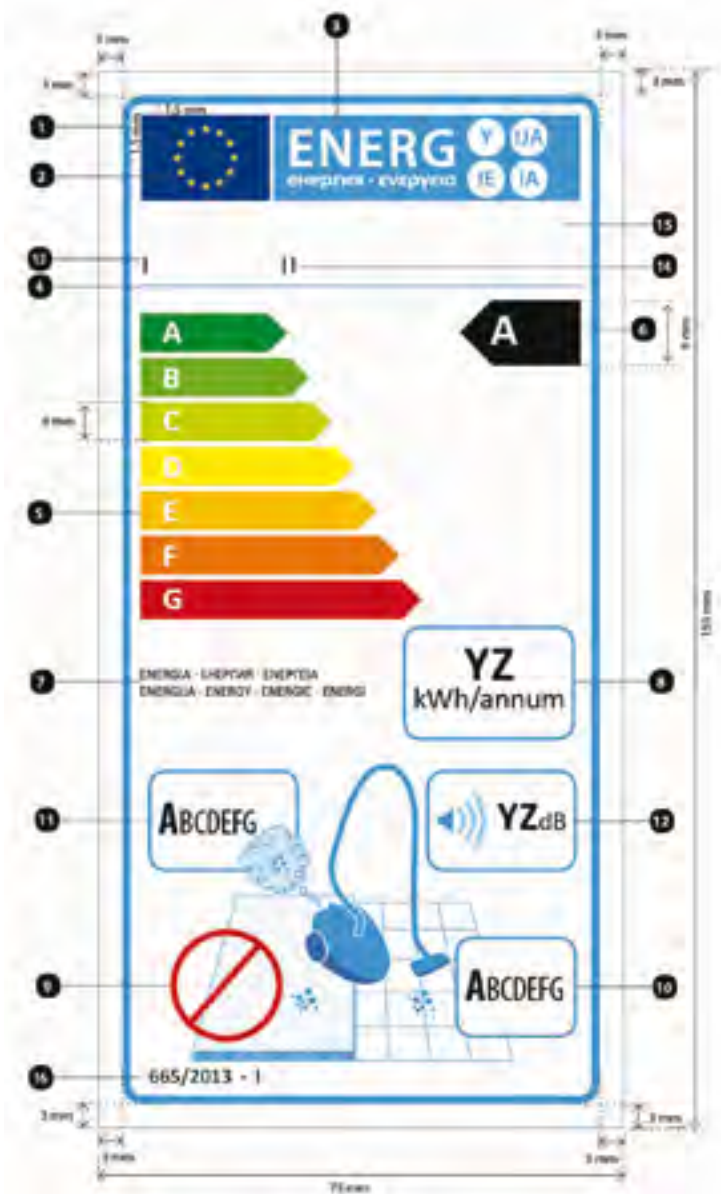
(c) Colours are coded as CMYK — cyan, magenta, yellow and black, following this example: 00-70-X-00: 0 % cyan, 70 % magenta, 100 % yellow, 0 % black.

(d) The label shall fulfil all of the following requirements (numbers refer to the figure above):

- 1 EU label border stroke: 3,5 pt – colour: Cyan 100 % – round corners: 2,5 mm.
- 2 EU logo: Colours: X-80-00-00 and 00-00-X-00.
- 3 Energy logo: Colour: X-00-00-00. Pictogram as depicted: EU logo + energy logo: width: 62 mm, height: 12 mm.
- 4 Sub-logos border: 1 pt – colour: cyan 100 % – length: 62 mm.
- 5 A-G and A+++–D scales:
 - Arrow: height: 6 mm, gap: 1 mm – colours:
 - Highest class: X-00-X-00
 - Second class: 70-00-X-00,
 - Third class: 30-00-X-00,
 - Fourth class: 00-00-X-00,
 - Fifth class: 00-30-X-00,
 - Sixth class: 00-70-X-00,
 - Last class: 00-X-X-00,
 - Text: Calibri bold 13 pt, capitals, white.
- 6 Energy efficiency class
 - Arrow: width: 17 mm, height: 9 mm, 100% black;
 - Text: Calibri bold 18,5 pt, capitals, white; '+' symbols: Calibri bold 11 pt, white aligned on a single row.
- 7 Energy
 - Text: Calibri regular 6 pt, capitals, black.
- 8 Annual energy consumption in kWh/annum:
 - Value 'YZ': Calibri bold 20 pt, 100 % black;
 - 'kWh/annum': Calibri bold 12 pt, 100 % black.
- 9 Cleaning performance on carpet:
 - Border: 1,5 pt – colour: cyan 100 % – round corners: 2,5 mm;
 - Letters: Calibri regular 13,5 pt, 100 % black; and Calibri bold 18 pt, 100 % black.
- 10 Cleaning performance on hard floor:
 - Border: 1,5 pt – colour: cyan 100 % – round corners: 2,5 mm;
 - Letters: Calibri regular 13,5 pt, 100 % black; and Calibri bold 18 pt, 100 % black.

- 11 Dust re-emission
 - Border: 1,5 pt – colour: cyan 100 % – round corners: 2,5 mm;
 - Letters: Calibri regular 13,5 pt, 100 % black; and Calibri bold 18 pt, 100 % black.
- 12 Sound power level:
 - Border: 1,5 pt – colour: cyan 100 % – round corners: 2,5 mm;
 - Value: Calibri bold 16 pt, 100 % black;
 - 'dB': Calibri regular 11 pt, 100 % black.
- 13 Supplier's name or trademark
- 14 Supplier's model identifier
- 15 The suppliers' name or trade mark and model identifier shall fit in a space of 62 × 10 mm
- 16 Numbering of the Regulation and label:
 - Text: Calibri bold 8.

3.2. The design of the labels for hard floor vacuum cleaners shall be the following:

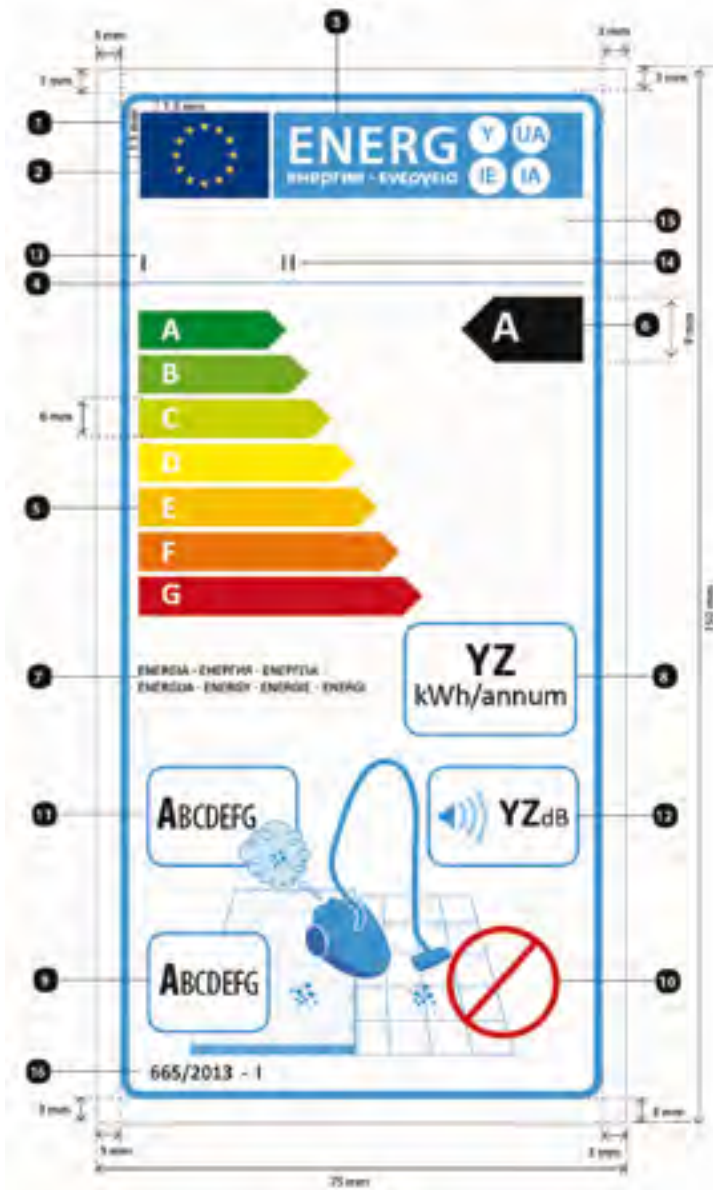


Whereby:

The design description of the label shall be in accordance with point 4.1 of this Annex except for Number 9 where the following applies:

- 9 Cleaning performance on carpet:
 - Exclusion sign: border 3 pt – colour: 00-X-X-00 (100 % red) – diameter 16 mm.

3.3. The design of the labels for carpet floor vacuum cleaners shall be the following:



Whereby:

The design description of the label shall be in accordance with point 4.1 of this Annex except for Number 10 where the following applies:

10 Cleaning performance on hard floor:

- Exclusion sign: border 3 pt – colour: 00-X-X-00 (100 % red) – diameter 16 mm.

ANNEX III

Fiche

1. The information in the product fiche of the vacuum cleaner shall be given in the following order and shall be included in the product brochure or other literature provided with the product:

- (a) supplier's name or trade mark;
- (b) supplier's model identifier which means the code, usually alphanumeric, which distinguishes a specific vacuum cleaner model from other models with the same trade mark or supplier's name;
- (c) the energy efficiency class, determined in accordance with Annex I;
- (d) the annual energy consumption in kWh/year, rounded to one decimal place, as defined in Annex VI; it shall be described as: 'Indicative annual energy consumption (kWh per year), based on 50 cleaning tasks. Actual annual energy consumption will depend on how the appliance is used.';
- (e) for general purpose vacuum cleaners and carpet vacuum cleaners, the carpet cleaning performance class determined in accordance with Annex I. For hard floor vacuum cleaners, the declaration 'not suitable for use on carpets with the delivered nozzle';
- (f) for general purpose vacuum cleaners and hard floor vacuum cleaners, the hard floor cleaning performance class determined in accordance with Annex I. For carpet vacuum cleaners, the declaration 'not suitable for use on hard floors with the delivered nozzle';
- (g) the dust re-emission class, determined in accordance with Annex I;
- (h) the sound power level, as defined in Annex VI;
- (i) the rated input power, as defined in Annex VI;
- (j) where the vacuum cleaner has been granted an 'EU Eco-label award' under Regulation (EC) No 66/2010, this information may be included.

2. One fiche may cover a number of vacuum cleaner models supplied by the same supplier.

3. The information contained in the fiche may be given in the form of a copy of the label, either in colour or in black and white. Where this is the case, the information listed in point 1 not already displayed on the label shall also be provided.

ANNEX IV

Technical documentation

1. The technical documentation referred to in Article 3 shall include:
 - (a) the name and address of the supplier;
 - (b) a general description of the vacuum cleaner type and/or model and/or commercial code, sufficient for it to be unequivocally and easily identified;
 - (c) where appropriate, the references of the harmonised standards applied;
 - (d) where appropriate, the other technical standards and specifications used;
 - (e) identification and signature of the person empowered to bind the supplier;
 - (f) technical parameters measured and calculated in accordance with Annex VI:
 - (i) the specific energy consumption during carpet test, where applicable;
 - (ii) the specific energy consumption during hard floor test, where applicable;
 - (iii) the dust pick up on carpet and on hard floor as applicable;
 - (iv) the dust re-emission;
 - (v) the sound power level;
 - (vi) the rated input power;
 - (vii) specific values as indicated in points 3 and 4 of Annex VI as applicable.
 - (g) the results of calculations performed in accordance with Annex VI.
2. Where the information included in the technical documentation file for a particular vacuum cleaner model has been obtained by calculation on the basis of an equivalent vacuum cleaner, the technical documentation shall include details of such calculations and of tests undertaken by suppliers to verify the accuracy of the calculations undertaken. The technical information shall also include a list of all other equivalent vacuum cleaner models where the information was obtained on the same basis.
3. The information contained in this technical documentation may be merged with the technical documentation provided in accordance with measures under Directive 2009/125/EC.

ANNEX V

Information to be provided where end-users cannot be expected to see the product displayed

1. The information referred to in Article 4(b) shall be provided in the following order:
 - (a) the energy efficiency class, determined in accordance with Annex I;
 - (b) the annual energy consumption, as defined in Annex VI;
 - (c) for general purpose vacuum cleaners and carpet vacuum cleaners, the carpet cleaning performance class determined in accordance with Annex I. For hard floor vacuum cleaners, the declaration 'not suitable for use on carpets';
 - (d) for general purpose vacuum cleaners and hard floor vacuum cleaners, the hard floor cleaning performance class determined in accordance with Annex I. For carpet vacuum cleaners, the declaration 'not suitable for use on hard floors';
 - (e) the dust re-emission class, determined in accordance with Annex I;
 - (f) the sound power level, as defined in Annex VI.
2. Where other information contained in the product information fiche is also provided, it shall be in the form and order specified in Annex III.
3. The size and font in which the information referred in this Annex is printed or shown shall be legible.

ANNEX VI

Measurement and calculation methods

1. For the purposes of compliance and verification of compliance with the requirements of this Regulation, measurements and calculations shall be made using a reliable, accurate and reproducible methods that take into account the generally recognised state-of-the-art measurement and calculation methods, including harmonised standards the reference numbers of which have been published for the purpose in the *Official Journal of the European Union*. They shall meet the technical definitions, conditions, equations and parameters set out this Annex.

2. Technical definitions

(a) 'hard floor test' means a test of two cleaning cycles where the cleaning head of a vacuum cleaner operating at maximum suction setting passes over a wooden test plate test area with width equal to the cleaning head width and appropriate length, featuring a diagonally (45°) placed test crevice, where the time elapsed, electric power consumption and the relative position of the center of the cleaning head to the test area are continuously measured and recorded at an appropriate sample rate and where at the end of each cleaning cycle the mass decrease of the test crevice is appropriately assessed;

(b) 'test crevice' means a removable U-shaped insert with appropriate dimensions filled at the beginning of a cleaning cycle with appropriate artificial dust;

(c) 'carpet test' means a test with an appropriate number of cleaning cycles on a Wilton carpet test rig where the cleaning head of a vacuum cleaner operating at maximum suction setting passes over the test area with width equal to the cleaning head width and appropriate length, soiled with equally distributed and appropriately embedded test dust of appropriate composition, where the time elapsed, electric power consumption and the relative position of the center of the cleaning head to the test area are continuously measured and recorded at an appropriate sample rate and at the end of each cleaning cycle the mass increase of the appliance dust receptacle is appropriately assessed;

(d) 'cleaning head width' in m, at an accuracy of 3 decimal places, means the external maximum width of the cleaning head;

(e) 'cleaning cycle' means a sequence of 5 double strokes of the vacuum cleaner on a floor-specific test area ('carpet' or 'hard floor');

(f) 'double stroke' means one forward and one backward movement of the cleaning head in a parallel pattern, performed at a uniform test stroke speed and with a specified test stroke length;

(g) 'test stroke speed' in m/h means the appropriate cleaning head speed for testing, preferably realized with an electromechanical operator. Products with self-propelled cleaning heads shall try to come as close as possible to the appropriate speed, but a deviation is permitted when clearly stated in the technical documentation;

(h) 'test stroke length' in m means the length of the test area plus the cleaning head distance covered by the center of the cleaning head when moving over the appropriate acceleration zones before and after the test area;

(i) 'dust pick up' (dpu), at an accuracy of 3 decimal places, means the ratio of the mass of the artificial dust removed, determined for carpet through the mass increase of the appliance dust receptacle and

for hard floor through the mass decrease of the test crevice, after a number of double strokes of the cleaning head, to the mass of artificial dust initially applied to a test area, for carpet corrected for the specific test conditions and for hard floor corrected for the length and positioning of the test crevice;

(j) 'reference vacuum cleaner system' means electrically operated laboratory equipment used to measure the calibrated and reference dust pick-up on carpets with given air related parameters to improve the reproducibility of test results;

(k) 'rated input power' in W means the electric input power declared by the manufacturer, whereby for appliances that are enabled to function also for other purposes than vacuum cleaning only the electric input power relevant to vacuum cleaning applies;

(l) 'dust re-emission' means the ratio, expressed as a percentage at an accuracy of 2 decimal places, of the number of all dust particles of a size from 0.3 to 10 μm emitted by a vacuum cleaner to the number of all dust particles of the same size range entering the suction inlet when fed with a specific amount of dust of that particle size range. The value includes not only dust measured at the vacuum cleaner outlet but also dust emitted elsewhere either from leaks, or generated by the vacuum cleaner;

(m) 'sound power level' means airborne acoustical noise emissions, expressed in dB(A) re 1 pW and rounded to the nearest integer.

3. Annual energy consumption

The annual energy consumption AE is calculated, in kWh/year and rounded to one decimal place, as follows:

for carpet vacuum cleaners:

$$AE_c = 4 \times 87 \times 50 \times 0,001 \times ASE_c \times \left(\frac{1 - 0,20}{dpu_c - 0,20} \right)$$

for hard floor vacuum cleaners:

$$AE_{hf} = 4 \times 87 \times 50 \times 0,001 \times ASE_{hf} \times \left(\frac{1 - 0,20}{dpu_{hf} - 0,20} \right)$$

for general-purpose vacuum cleaners:

$$AE_{gp} = 0,5 \times AE_c + 0,5 \times AE_{hf}$$

Where:

- ASE_c is the average specific energy consumption in Wh/m² during carpet test, calculated as provided below;

- ASE_{hf} is the average specific energy consumption in Wh/m² during hard floor test, calculated as provided below;

- dpu_c is the dust pick-up on carpet, determined in accordance with point 4 of this Annex;

- dp_{hf} is the dust pick-up on hard floor, determined in accordance with point 4 of this Annex;
- 50 is the standard number of cleaning tasks per year;
- 87 is the standard dwelling surface to be cleaned in m²;
- 4 is the standard number of times that a vacuum cleaner passes over each point on the floor (two double strokes);
- 0,001 is the conversion factor from Wh to kWh;
- 1 is the standard dust pick-up;
- 0,20 is the standard difference between dust pick-up after five and after two double strokes.

Average specific energy consumption (ASE)

The average specific energy consumption during carpet test (ASE_c) and during hard floor test (ASE_{hf}) shall be determined as an average of the specific energy consumption (SE) of the number of cleaning cycles that constitute the carpet and hard floor test respectively. The general equation for the specific energy consumption SE in Wh/m² test area, at an accuracy of 3 decimal places, applicable for carpet, hard floor and general purpose vacuum cleaners with the appropriate suffixes, is:

$$SE = \frac{(P + NP) \times t}{A}$$

Where:

- P is the average power in W, at an accuracy of 2 decimal places, during the time in a cleaning cycle that the center of the cleaning head is moving over the test area;
- NP is the average power equivalent in W, at an accuracy of 2 decimal places, of battery operated active nozzle, if any, of the vacuum cleaner, calculated as provided below;
- t is the total time in hours, at an accuracy of 4 decimal places, in a cleaning cycle during which the centre of the cleaning head, i.e. a point halfway between the side, front and back edges of the cleaning head, is moving over the test area;
- A is the surface area in m², at an accuracy of 3 decimal places, passed over by the cleaning head in a cleaning cycle, calculated as 10 times the product of the head width and the appropriate length of test area. If a household vacuum cleaner has a head width of over 0,320 m, then the figure of 0,320 m shall be substituted for head width in this calculation.

For the hard floor tests the suffix h_f and parameter names SE_{hf} , P_{hf} , NP_{hf} , t_{hf} and A_{hf} shall be used in the above equation. For the carpet tests the suffix c and parameter names SE_c , P_c , NP_c , t_c and A_c shall be used in the above equation. For each of the cleaning cycles, values of SE_{hf} , P_{hf} , NP_{hf} , t_{hf} , A_{hf} and/or SE_c , P_c , NP_c , t_c , A_c , as applicable, shall be included in the technical documentation.

Power equivalent of battery operated active nozzles (NP)

The general equation for the average power equivalent of battery operated active nozzles NP in W, applicable for carpet, hard floor and general purpose vacuum cleaners with the appropriate suffixes, is:

$$NP = \frac{E}{t_{bat}}$$

Where:

- E is the electricity consumption in Wh at an accuracy of 3 decimal places of the battery operated active nozzle of the vacuum cleaner necessary to return the initially fully charged battery to its originally fully charged state after a cleaning cycle;
- t_{bat} is the total time in hours, at an accuracy of 4 decimal places, in a cleaning cycle in which the battery operated active nozzle of the vacuum cleaner is activated, in accordance with manufacturer's instructions;

In case the vacuum cleaner is not equipped with a battery operated active nozzle the value of NP equals zero.

For the hard floor tests the suffix hf and parameter names NP_{hf}, E_{hf}, t_{bat, hf} shall be used in the above equation. For the carpet tests the suffix c and parameter names NP_c, E_c, t_{bat, c} shall be used in the above equation. For each of the cleaning cycles, values of E_{hf}, t_{bat, hf} and/or E_c, t_{bat, c}, as applicable, shall be included in the technical documentation.

4. Dust pick-up

The dust pick-up on hard floor (dpu_{hf}) shall be determined as the average of the results of the two cleaning cycles in a hard floor test.

The dust pick-up on carpet (dpu_c) shall be determined as the average of the results of the cleaning cycles in a carpet test. To correct for deviations from a test carpet's original properties, the dust pick-up on carpet (dpu_c) shall be calculated as follows:

$$dpu_c = dpu_m \times \left(\frac{dpu_{cal}}{dpu_{ref}} \right)$$

Where:

- dpu_m is the measured dust pick-up of the vacuum cleaner;
- dpu_{cal} is the dust pick-up of the reference vacuum cleaner system measured when the test carpet was in original condition;
- dpu_{ref} is the measured dust pick-up of the reference vacuum cleaner system.

Values of dpu_m for each of the cleaning cycles, dpu_c, dpu_{cal} and dpu_{ref} shall be included in the technical documentation.

5. Dust re-emission

The dust re-emission shall be determined while the vacuum cleaner is operating at its maximum air flow.

6. Sound power level

Sound power level shall be determined on carpet.

7. Hybrid vacuum cleaners

For hybrid vacuum cleaners all measurements shall be executed with the vacuum cleaner powered by the electric mains and any battery operated active nozzle only.

ANNEX VII

Verification procedure for market surveillance purposes

For the purposes of assessing conformity with the requirements laid down in Articles 3 and 4, the authorities of the **Contracting Parties** shall apply the following verification procedure:

1. The **Contracting Party** authorities shall test one single unit per model.
2. The vacuum cleaner model shall be considered to comply with the applicable requirements if the values and classes on the label and in the product fiche correspond to the values in the technical documentation and if testing of the relevant model parameters listed in Table 4 shows compliance for all of those parameters.
3. If the result referred to in point 2 is not achieved, the **Contracting Parties** authorities shall randomly select three additional units of the same model for testing. As an alternative, the three additional units selected may be of one or more different models which have been listed as equivalent vacuum cleaner in the manufacturer's technical documentation.
4. The vacuum cleaner model shall be considered to comply with the applicable requirements if testing of the relevant model parameters listed in Table 4 shows compliance for all of those parameters.
5. If the results referred to in point 4 are not achieved, the model and all equivalent vacuum cleaner models shall be considered not to comply with this Regulation.

Contracting Party authorities shall use the measurement and calculation methods set out in Annex VI.

The verification tolerances defined in this Annex relate only to the verification of the measured parameters by **Contracting Party** authorities and shall not be used by the supplier as an allowed tolerance to establish the values in the technical documentation. The values and classes on the label or in the product fiche shall not be more favourable for the supplier than the values reported in the technical documentation.

Table 4

Parameter	Verification tolerances
Annual energy consumption	The determined value* is not more than 10 % higher than the declared value.
Dust pick up on carpet	The determined value* is not more than 0,03 lower than the declared value.
Dust pick up on hard floor	The determined value* is not more than 0,03 lower than the declared value.
Dust re-emission	The determined value* is not more than 15 % higher than the declared value.
Sound power level	The determined value* is not greater than the declared value.

* the arithmetic average of the values determined in the case of three additional units tested as prescribed in point 3.

