

Brussels, **XXX**

[...] (2024) **XXX** draft

**COMMISSION DELEGATED REGULATION (EU) .../...**

**of **XXX****

**supplementing Regulation (EU) 2017/1369 of the European Parliament  
and of the Council with regard to energy labelling of vacuum cleaners**

(Text with EEA relevance)

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# COMMISSION DELEGATED REGULATION (EU) .../...

(Text with EEA relevance)

## *Article 1*

### **Subject matter and scope**

1. This Regulation establishes requirements for the labelling of, and the provision of supplementary product information on, mains-operated and battery-operated dry vacuum cleaners for household or commercial use, including hybrid vacuum cleaners.
2. This Regulation shall not apply to:
  - a) wet, wet and dry, industrial, or central vacuum cleaners;
  - b) floor polishers;
  - c) outdoor vacuums;
  - d) handheld non-floor vacuum cleaners;
  - e) floor mopping systems including robot mop and robot 2:1;
  - f) robot dry vacuum cleaners.

## *Article 2*

### **Definitions<sup>1</sup>**

For the purpose of this Regulation the following definitions shall apply:

- (1) ‘*mains*’ means the electricity supply from the grid of 230 ( $\pm 10$  %) volts of alternating current at 50 Hz;
- (2) ‘*battery*’ means any device delivering electrical energy generated by direct conversion of chemical energy, having internal or external storage, and consisting of one or more non-rechargeable or rechargeable battery cells, modules or of packs of them, and includes a battery that has been subject to preparation for re-use, preparation for repurposing, repurposing or remanufacturing;
- (3) ‘*vacuum cleaner*’ means an appliance that removes dust and/or debris from a floor surface to be cleaned by means of an airflow created by underpressure developed within the unit and is mains-operated, battery-operated or hybrid;
- (4) ‘*battery-operated vacuum cleaner*’ means a vacuum cleaner powered by a portable, rechargeable battery<sup>2</sup>;

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<sup>1</sup> The same as in the draft ecodesign act.

<sup>2</sup> Put cordless in the definition for consistency with the name of the standards.

- (5) *'portable battery'* means a battery that is sealed, weighs 5 kg or less, is not designed specifically for industrial use and is neither an electric vehicle battery nor an automotive battery;
- (6) *'rechargeable battery'* means a battery that is designed to be electrically recharged;
- (7) *'dry vacuum cleaner'* means a vacuum cleaner designed to remove dust and/or debris that is principally dry (dust, fibre, threads), including types equipped with a battery-operated active nozzle;
- (8) *'household vacuum cleaner'* means a dry vacuum cleaner, including water filter vacuum cleaner, as declared by the manufacturer to have an intended use in private households, tested for debris pick-up with test debris conditions specific for household vacuum cleaners;
- (9) *'commercial vacuum cleaner'* means a dry vacuum cleaner declared by the manufacturer to have an intended use for professional housekeeping including hotels<sup>3</sup>, tested for debris pick-up with test debris conditions specific for commercial vacuum cleaners;
- (10) *'test debris'* means a test that uses artificial soil items with standardised geometry, physical and chemical properties simulating debris such as food spills of rice and lentils. to be used to test household vacuum cleaners; for the test on commercial vacuum cleaners, the soil items are identical but the test uses a material with higher density than for household vacuum cleaners, simulating pick-up of small metal objects;
- (11) *'water filter vacuum cleaner'* means a mains-operated 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;
- (12) *'hybrid vacuum cleaner'* means a vacuum cleaner that can be operated at end-user choice by mains or batteries;
- (13) *'dry robot vacuum cleaner'* means a battery-operated dry vacuum cleaner, consisting of a mobile part and a docking station and/or other accessories to assist its operation, capable of operating autonomously within a defined perimeter;
- (14) *'wet vacuum cleaner'* means a vacuum cleaner that removes dry and/or wet material (soil) from the floor surface by applying water, water-based detergent or steam to the floor 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 sprayextraction vacuum cleaners;
- (15) *'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;
- (16) *'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

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<sup>3</sup> To double-check that water filter vacuum cleaners are only household vacuum cleaners and that commercial vacuum cleaners cannot be water filter ones.

industrial machine or tool and/or a commercial vacuum cleaner with a head width exceeding 0,50 m;

- (17) '*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;
- (18) '*floor polisher*' means an electrical appliance that protects, smoothes and/or renders 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;
- (19) '*outdoor vacuum*' means an appliance that is used 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 as a blower;
- (20) '*handheld non-floor vacuum cleaner*' means a lightweight battery-operated vacuum cleaner, operated whilst being held in one hand, designed specifically for cleaning surfaces other than floors and cannot be combined with any accessory allowing it to be used also for cleaning floors;
- (21) '*floor mopping system*' means an electrical appliance that removes dry and/or wet material (soil) from the floor by applying a steam and/or water, water-based detergent to the floor surface and mopping it with a textile or foamed material and commonly also equipped with the auxiliary functionality of a vacuum cleaner.
- (22) '*robot mop*' means an autonomously operating floor mopping system;
- (23) '*robot 2:1*' means a floor cleaning device that combines the function of a robot mop and a robot vacuum cleaner in a single device.

For the purposes of the Annexes, additional definitions are set out in Annex I<sup>4</sup>.

### *Article 3* **Obligations of suppliers**

1. Suppliers of vacuum cleaners shall ensure that:
  - (a) each vacuum cleaner is supplied with a printed label in the format as set out in Annex III;
  - (b) the parameters of the product information sheet, as set out in Annex V are entered into the product database;

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<sup>4</sup> To put in a recital the reference to the definitions of supplier and other relevant ones from the framework energy labelling legislation.

- (c) if specifically requested by the dealer, the product information sheet shall be made available in printed form;
  - (d) the content of the technical documentation, set out in Annex VI, is entered into the product database;
  - (e) any visual advertisement for a specific model of vacuum cleaner contains the energy efficiency class and the range of energy efficiency classes available on the label in accordance with Annex VII and Annex VIII;
  - (f) any technical promotional material concerning a specific model of vacuum cleaner, including technical promotional material on the Internet, which describes its specific technical parameters includes the energy efficiency class of that model and the range of energy efficiency classes available on the label, in accordance with Annex VII;
  - (g) an electronic label in the format and containing the information as set out in Annex III shall be made available to dealers for each model of vacuum cleaner;
  - (h) an electronic product information sheet, as set out in Annex V, is made available to dealers for each model of vacuum cleaner.
2. The energy efficiency class shall be based on the energy efficiency index calculated in accordance with Annex II.

*Article 4*  
**Obligation of dealers**

Dealers shall ensure that:

- (a) each vacuum cleaner, at the point of sale, including at trade fairs, bears the label provided by suppliers in accordance with point 1 (a) of Article 3 in such a way as to be clearly visible on the outside, on the front or top of the vacuum cleaner;
- (b) in the event of distance selling and sale through the internet, the label and product information sheet are provided in accordance with Annexes VII and VIII;
- (c) any visual advertisement for a specific model of vacuum cleaner contains the energy efficiency class of that model and the range of energy efficiency classes available on the label, in accordance with Annex VII and Annex VIII;
- (d) any technical promotional material concerning a specific model of vacuum cleaner including technical promotional material on the Internet, which describes its specific technical parameters, includes the energy efficiency class of that model and the range of energy efficiency classes available on the label, in accordance with Annex VII.

## Article 5

### **Obligations of internet hosting platforms<sup>5</sup>**

Where a hosting service provider as referred to in Article 14 of Directive 2000/31/EC of the European Parliament and of the Council<sup>6</sup> allows the direct selling of vacuum cleaners through its Internet website, the service provider shall enable the showing of the electronic label and electronic product information sheet provided by the dealer on the display mechanism in accordance with the provisions of Annex VIII and shall inform the dealer of the obligation to display them.

## Article 6

### **Measurement methods**

What is required to be provided pursuant to Articles 3 and 4 shall be obtained by reliable, accurate and reproducible measurement and calculation methods, which take into account the recognised state-of-the-art measurement and calculation methods set out in Annex IV.

## Article 7

### **Verification procedure for market surveillance purposes**

Member States shall apply the procedure laid down in Annex IX when performing the market surveillance checks referred to in point 3 of Article 8 of Regulation (EU) 2017/1369<sup>7</sup>.

## Article 8

### **Review**

The Commission shall review this Regulation in the light of technological progress and present the results of this review including, if appropriate, a draft revision proposal, to the Consultation Forum by *[OP – please insert the date - seven years after day of entry into force of this Regulation]*.

## Article 9

### **Entry into force and application**

This Regulation shall enter into force on the twentieth day following that of its publication in the Official Journal of the European Union.

It shall apply from 1 September 2025<sup>8</sup>.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

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<sup>5</sup>This article may need to be revised in view of the new Digital Services Act.

<sup>6</sup> Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market (OJ L 178, 17.7.2000, p. 1).

<sup>7</sup> Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017 setting a framework for energy labelling and repealing Directive 2010/30/EU (OJ L 198, 28.7.2017, p. 1–23)

<sup>8</sup> Same date as ecodesign.

Done at Brussels,

*For the Commission*

*The President*

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**Definitions applicable for the annexes<sup>9</sup>**

For the purpose of Annexes II to V, the following definitions apply:

- (1) *'test dust'* or *'dust'* means a standard type of artificial dust to be picked up in order to simulate the removal of dust from floors and dust re-emission;
- (2) *'carpet vacuum cleaner'* means a dry vacuum cleaner declared with an intended use for cleaning carpets only;
- (3) *'hard floor vacuum cleaner'* means a dry vacuum cleaner declared with an intended use for cleaning hard floors only;
- (4) *'general purpose vacuum cleaner'* means a dry vacuum cleaner declared with an intended use for cleaning both carpets and hard floors;
- (5) *'universal nozzle'* means an active (also battery-operated) or passive nozzle that is used for dust and debris pick-up on hard floor or carpet;
- (6) *'active nozzle'* means a cleaning head of a vacuum cleaner, equipped with an agitation device to assist dirt removal;
- (7) *'passive nozzle'* means a cleaning head of a vacuum cleaner, without any driven agitation devices;
- (8) *'battery-operated active nozzle'* means a cleaning head of a mains-operated vacuum cleaner, equipped with a battery-powered agitation device to assist dirt removal;
- (9) *'cleaning test'*<sup>10</sup> is a test of a vacuum cleaner measuring the removal of test debris or test dust after 3 double strokes of the universal nozzle over a test area soiled with test dust or test debris. The cleaning test consists of at least 3 test runs starting with a forward stroke and an equal number of test runs starting with a backward stroke, each test runs starting with a partially filled receptacle, a new preparation of a clean carpet or hard floor test area with a standard soil distribution. The declared test result is the average of the test runs for debris or dust pick-up and the average power intake during the tests when the head is moving over the test area;
- (10) *'double stroke'* means one forward and one backward movement of the cleaning head in a parallel pattern, where the forward strokes and the return strokes are congruent, performed at a constant test stroke speed and with a standard test stroke length;
- (11) *'debris pick-up'* means the mass increase of a receptacle after a test run, in grams, in the cleaning test divided by the mass of debris on the test area before the test run, in %;
- (12) *'dust pick-up'* means in a cleaning test the mass increase of a receptacle after a test run, in grams, divided by the mass of dust on the test area before the test run or the

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<sup>9</sup> Same as in the ecodesign draft.

<sup>10</sup> To see if to add it in Annex 3a

mass decrease of the crevice after a test run, in grams, divided by the test dust mass applied to the U-shaped crevice, in %;

- (13) '*partially loaded receptacle*' means a receptacle loaded with the mass of simulated household dust, in grams, calculated as 100 grams/litre of the maximum usable volume declared by the manufacturer; ;
- (14) '*manufacturer declared usable volume*' (*muv*) means the maximum usable volume of the receptacle of a vacuum cleaner as declared by the manufacturer, in litres rounded to 2 decimals;
- (15) '*carpet floor dust pick-up*' (*dpuc*), in %, means the result of a cleaning test on a standard carpet floor surface with an appropriate amount of test dust distributed in a standardised way over the test area;
- (16) '*carpet floor debris pick-up*' (*debc*), in %, means the result of a cleaning test on a standard carpet floor surface soiled with an appropriate mass and type of household or commercial test debris, distributed in a standardised way over the test area;
- (17) '*hard floor dust pick-up*' (*dpuhf*), in %, means the result of a cleaning test on a standard hard floor surface with a dust filled U-shaped test crevice, placed at an angle of 45 degrees with the direction of the cleaning head strokes;
- (18) '*hard floor debris pick-up*' (*debhf*), in %, means the result of a cleaning test on a standard hard floor surface soiled with an appropriate amount and type of household or commercial test debris, distributed in a standardised way over the test area;
- (19) '*test crevice*' means a removable U-shaped insert with appropriate dimensions filled at the beginning of a cleaning cycle with test dust;
- (20) '*cleaning cycle*' means a sequence of 3 double strokes of the vacuum cleaner on a floor-specific test surface ('carpet' or 'hard floor');
- (21) '*cleaning head width*' (*B*) means the external maximum width of the cleaning head in m, at an accuracy of 3 decimal places;
- (22) '*test stroke speed*' (*v*) means the appropriate cleaning head speed for testing, in m/h, preferably realized with an electromechanical operator. Products with self-propelled cleaning heads shall come as close as possible to the appropriate speed, but a deviation is permitted when clearly stated in the technical documentation;
- (23) '*maximum operational power*' in W means the power level that the machine is not capable of exceeding in any operating condition set either by the user or automatically by the appliance;
- (24) '*dust re-emission*' means the ratio, expressed as a percentage at an accuracy of 3 decimal places, of the number of all dust particles of a size from 0.3 to 10  $\mu\text{m}$  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;
- (25) '*sound power level*' means airborne acoustical noise emissions, expressed in dB(A) re 1 pW and rounded to the nearest integer;

- (26) *'motion resistance'* means the average of the 2 results of the test conducted to determine the force, in N rounded to 2 decimals, when moving the cleaning head forward and backward over the test area while measuring debris pick-up on carpet or hard floor for household vacuum cleaners and measuring debris pick-up on hard floor for commercial vacuum cleaners;
- (27) *'battery endurance'* means the minimum number of discharged/charged cycles a battery can withstand until its runtime capacity has reached 70<sup>11</sup> [or 80]% of its initial capacity;
- (28) *'battery runtime'*<sup>12</sup> means the time it takes from a fully charged vacuum cleaner to reach <40% of original vacuum h<sub>0</sub> or when battery is fully discharged;
- (29) *'maintenance power'* means the power intake of battery-operated vacuum cleaners, including their docking/charging station, when not in on-mode or charging, to compensate self-discharging of the connected battery operated vacuum cleaner's battery and may include the display of information or status and networked standby when connected to a network;
- (30) *'spare part'* means a separate part that can replace a part with the same or similar function in a vacuum cleaner;
- (31) *'primary hose'* means the flexible hose between the nozzle and the vacuum cleaner housing;
- (32) *'secondary hose'* means an extendable and flexible hose for a secondary cleaning head to clean the stairs or other surfaces than the floor;
- (33) *'professional repairer'* means an operator or undertaking which provides services of repair and professional maintenance of vacuum cleaners;
- (34) *'declared values'* means the values provided by the manufacturer, importer or authorised representative for the stated, calculated or measured technical parameters in accordance with Article 5, for the verification of compliance by the Member State authorities;
- (35) *'equivalent model'* means a model which has the same technical characteristics relevant for the technical information to be provided, but which is placed on the market or put into service by the same manufacturer, importer or authorised representative as another model with a different model identifier; *'model identifier'* means the code, usually alphanumeric, which distinguishes a specific product model from other models with the same trade mark or the same manufacturer's, importer's or authorised representative's name;
- (36) *'maximum continuous airflow'* is the airflow that occurs when the highest permanently adjustable power level of the vacuum cleaner is selected. For battery-operated vacuum cleaners, a minimum runtime of 5 minutes must be achieved in

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<sup>11</sup> To discuss if 70% or 80% - the ecodesign Regulation (EU) 2023/1670 on smartphones, mobile phones, cordless phones and slate tablets requires that "the devices achieve at least 800 cycles at 80 % remaining capacity". The Nordic Swan and Blue Angel ecodesign, for universal portable battery use, require 175% of the number of cycles prescribed in the IEC 61960-3:2017, e.g. 700 cycles (175% x 400) voor Li-ion cells until capacity <70%

<sup>12</sup> To double-check and refine this definition in accordance with the standard mentioned in annex IIIa.

order to refer to maximum continuous airflow. A temporary power mode that does not exceed 5 minutes is not considered as continuous airflow.

**definitions for the reparability index**<sup>13</sup>

- (37) *'spare part'* means a separate part that can replace a part with the same or similar function in a vacuum cleaner. The functionality of the vacuum cleaners is restored or upgraded when the part is replaced by a spare part. Spare parts may be used parts;
- (38) *'disassembly'* means a process whereby a product is separated into its parts and/or components in such a way that it could subsequently be reassembled and made operational;
- (39) *'fastener'* means a hardware device or substance that mechanically, magnetically or by other means connects or fixes 2 or more objects, parts or pieces. A hardware device which in addition serves an electrical function shall also be considered a fastener. Fasteners are not to be considered parts;
- (40) *'reusable fastener'* means a fastener that can be completely reused in the reassembly for the same purpose and that does no damage either to the product or to the fastener itself during the disassembly or reassembly process in a way that makes their multiple reuse impossible;
- (41) *'removable fastener'* means a fastener that is not a reusable fastener, but whose removal does not damage the product, or leave residue, which precludes reassembly;
- (42) *'step'* means an operation that finishes with the removal of a part (or bundle) or with a change of tool; any placement of a part away from its initial location, even if that entails partial disconnection or unplugging, shall also be considered as removal;
- (43) *'step-time'* means the time required for a 'step';
- (44) *'basic tools'* means a screwdriver for slotted heads, cross recess or for hexalobular recess heads, hexagon socket key, combination wrench, combination pliers, half round nose pliers, diagonal cutters, multigrip pliers, locking pliers, combination pliers for wire stripping and terminal crimping, prying lever, tweezers, hammer, steel head, utility knife with snap-off blades, multimeter, voltage tester, soldering iron, hot glue gun, magnifying glass;
- (45) *'commercially available tool'* means a tool that is available for purchase by the general public and is neither a basic tool nor a proprietary tool;
- (46) *'proprietary tool'* means a tool that is not available for purchase by the general public or for which any applicable patents are not available to licence under fair, reasonable and non-discriminatory terms;
- (47) *'dust receptacle'* is the container for the dirt (dust, debris, fibre, etc.) picked up by the vacuum cleaner.

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<sup>13</sup> Reference to the definition for commercial guarantee (Directive (EU) 2019/771, article 2) would be in a recital.

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## ANNEX II

### Energy efficiency, cleaning speed, sound power and repairability classes

#### A. Energy efficiency class

The energy efficiency class of all vacuum cleaners in scope shall be determined on the basis of Energy Efficiency Index (EEI) as set out in Table 1.

The EEI of a vacuum cleaner shall be determined in accordance with Annex IV.

*Table 1*  
*Vacuum cleaner EEI class limits*

Energy Class	EEI class limits
A (most efficient)	$EEI \leq 23$
B	$23 < EEI \leq 37$
C	$37 < EEI \leq 64$
D	$51 < EEI \leq 51$
E	$64 < EEI \leq 64$
F	$78 < EEI \leq 92$
G (least efficient)	$EEI > 92$

#### B. Cleaning Speed classes

The Cleaning Speed class of commercial vacuum cleaners in scope shall be determined on the basis of its Cleaning Speed (CS) as set out in Table 2.

The CS of a vacuum cleaner shall be determined in accordance with Annex IV.

*Table 2*  
*Cleaning Speed classes of commercial vacuum cleaners*

Cleaning Speed Class	Cleaning Speed (CS) [m <sup>2</sup> /min]
A (highest speed)	$CS > 4,0$
B	$4,0 \geq CS > 3,6$
C	$3,6 \geq CS > 3,2$
D	$3,2 \geq CS > 2,8$
E (lowest speed)	$CS \leq 2,8$

#### C. Noise power classes

The noise power class of a vacuum cleaner in scope shall be determined in accordance with its sound power level as set out in Table 3.

The sound power level shall be determined in accordance with Annex IV.

*Table 3  
Noise power classes*

<b>Noise power class</b>	<b>Sound power level (dB(A))</b>
A	<50 dB(A)
B	50-65 dB(A)
C	65-80 dB(A)
D	>80 dB(A)

#### **D. Repairability classes**

The repairability class of a vacuum cleaner shall be determined on the basis of its repairability index (RI) as set out in Table 4.

The repairability index shall be determined in accordance with point 9 of Annex IV.

*Table 4  
Repairability classes*

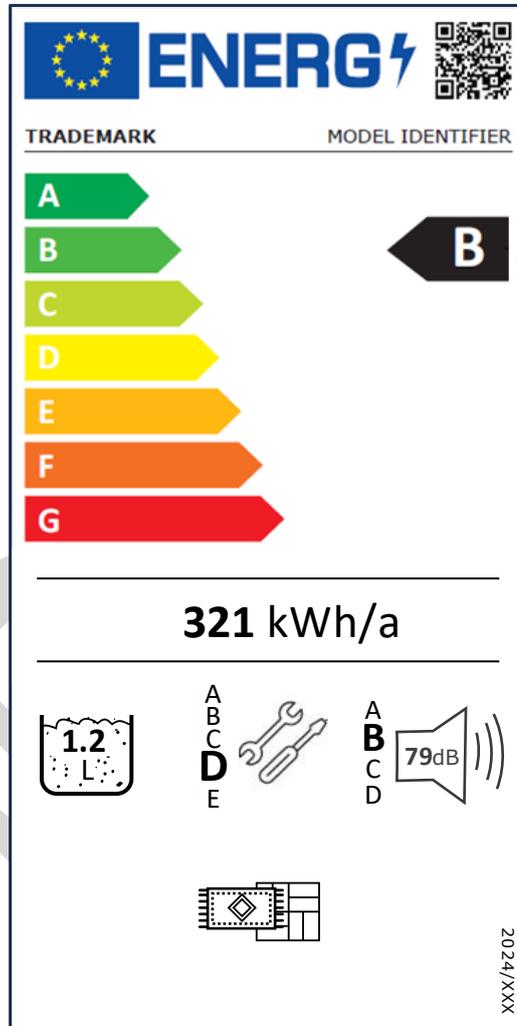
<b>Repairability class</b>	<b>Repairability index</b>
A	$RI > 9,0$
B	$7,0 \leq RI \leq 9,0$
C	$5,0 \leq RI < 7,0$
D	$3,0 \leq RI < 5,0$
E	$RI < 3,0$

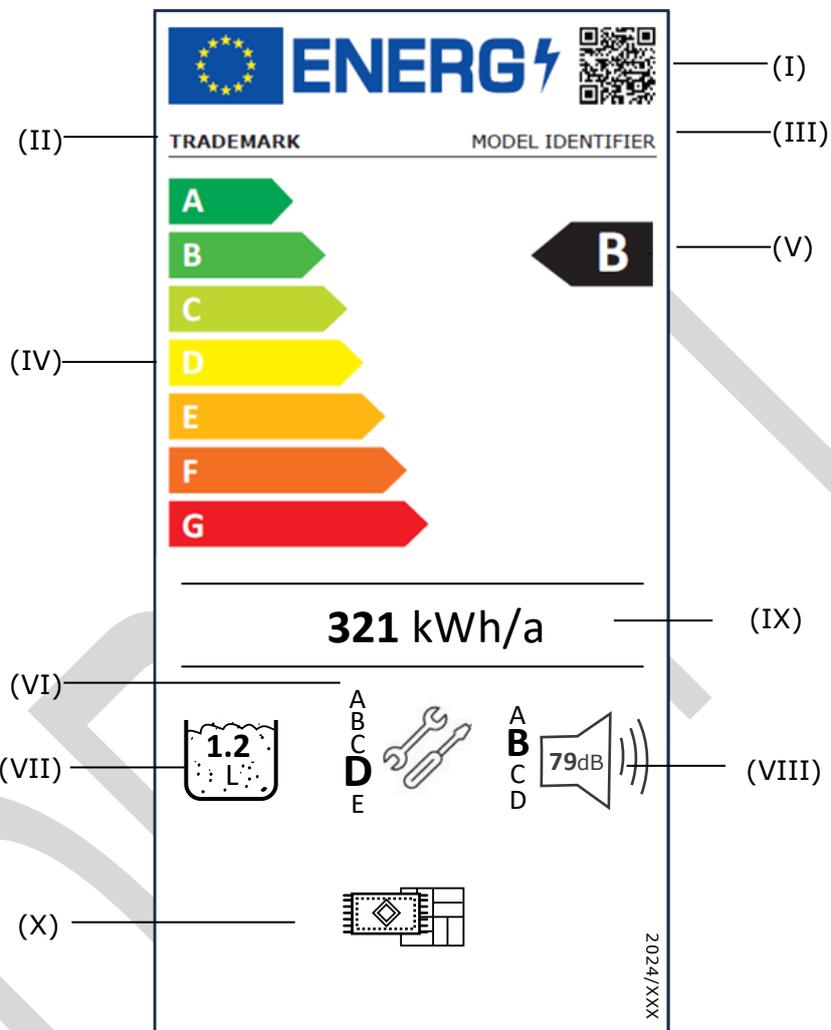
ANNEX III

Label

1. LABEL

1.1 Household mains-operated vacuum cleaners.





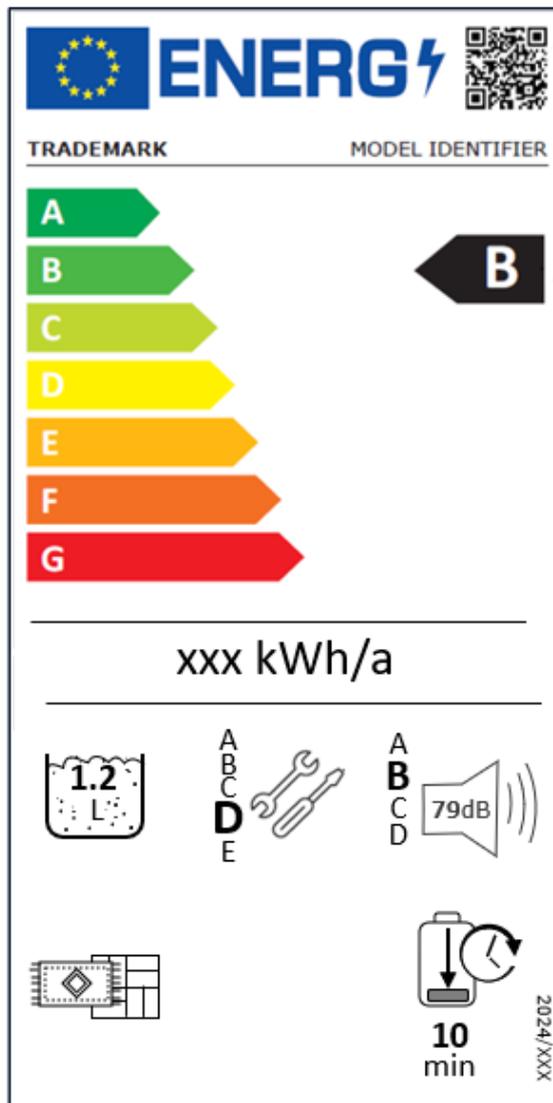
The following information shall be included in the label:

- I QR code;
- II Supplier's name or trademark;
- III Supplier's model identifier
- IV Scale of energy efficiency classes A to G;

- V The energy efficiency class as defined in Annex II; 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;
- VI Repairability class, determined in accordance with Annex II and IV;
- VII Maximum Useful Volume of the receptacle in litres;
- VIII Sound power with classes A-D;
- IX Electricity consumption per year AE (in kWh/a)
- X Icon for '*general purpose*' product; if '*hard floor only*' then use the '*tiles*' icon or if '*carpet only*' then use the '*rug*' icon instead.
- XI the number of this Regulation; that is '2024/XXX' [OP - please insert the number of this Regulation in this point and in the right corner of the energy label]

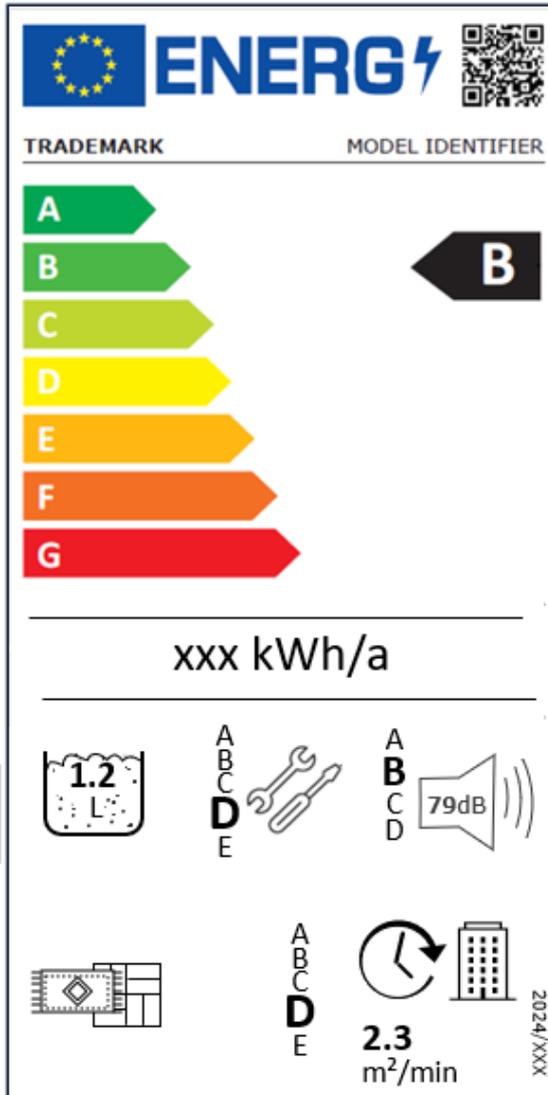
The design of the label shall be in accordance with point 2 of this Annex

1.2 Battery-operated vacuum cleaners (household only).



The information on the label has the same legend as in point 1.1, except that there is an extra position XI representing the battery runtime (fully charged), in minutes.

1.3 Commercial mains-operated vacuum cleaners.



The information on the label has the same legend as in point 1.1, except that there is an extra position XI representing the Cleaning Speed Index in m<sup>2</sup> per minutes, as calculated in Annex IV and as classified in Annex II.

2. LABEL DESIGN

*The label design will be elaborated by the Commission's graphic designer. The above preliminary designs are based on a label size of 69 mm width and 135 mm height.*

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## ANNEX IV<sup>14</sup>

### Measurement and calculation methods

For the purposes of compliance and verification of compliance with the requirements of this Regulation, measurements and calculations shall be made using harmonised standards whose reference numbers are published for that purpose in the Official Journal of the European Union, or other reliable, accurate and reproducible methods, which take into account the generally recognised state-of-the-art and are in conformity with the provisions in this Annex.

The cleaning tests for hard floor dust pick-up test  $dpu_{hf}$ , the hard floor debris test  $deb_{hf}$ , the carpet dust pick-up test  $dpu_c$  and the carpet debris test  $deb_c$  measure the cleaning performance and the average power demand using the universal nozzle only. The universal nozzle, in combination with other factors, is used to determine the annual energy consumption of the vacuum cleaner.

For hybrid vacuum cleaners all measurements shall be made with the vacuum cleaner powered by the mains and – if applicable – the battery-operated active nozzle.

#### 1. POWER DEMAND

##### (a) Cleaning test weighting per category of intended use

The average power demand  $P$  of vacuum cleaners for the 3 categories of intended use, in  $W$  rounded to 2 decimals, is determined from the average power demand during the appropriate cleaning tests as follows

$$P_c = 0.5 P(deb_c) + 0.5 P(dpu_c) \text{ for carpet vacuum cleaners,}$$

where

- $P_c$  is the average power demand for cleaning of vacuum cleaners declared suitable for carpet only, in  $W$  rounded to 2 decimals;
- $P(deb_c)$  is the average power demand during the carpet debris test, in  $W$  rounded to 2 decimals;
- $P(dpu_c)$  is the average power demand during the carpet dust pick-up test, in  $W$  rounded to 2 decimals;

$$P_{hf} = 0.5 P(deb_{hf}) + 0.5 P(dpu_{hf}) \text{ for hard floor vacuum cleaners,}$$

where

- $P_{hf}$  is the average power demand for cleaning of vacuum cleaners declared suitable for hard floors only, in  $W$  rounded to 2 decimals;
- $P(deb_{hf})$  is the average power demand during hard floor debris test, in  $W$  rounded to 2 decimals;

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<sup>14</sup> The same as the ecodesign draft act except point 8.

- $P(dp_{u_{hf}})$  is the average power demand during the hard floor crevice dust pick-up test, in W rounded to 2 decimals;

$$P_{gp} = 0.25 P_c + 0.75 P_{hf} \text{ for general purpose vacuum cleaners.}$$

where

- $P_{gp}$  is the average power demand for cleaning of general purpose vacuum cleaners, meaning declared as suitable for both carpet and hard floors, in W rounded to 2 decimals.
- (b) The average electric power demand of *mains-operated vacuum cleaners* over a cleaning test is determined from power measurements during the time periods that the center of the cleaning head is moving over the test area.
- (c) In case of a mains-operated vacuum cleaner equipped with active nozzle, if the active nozzle is battery-operated, the average nozzle power demand will be assessed in the same way as the average power intake of a battery-operated vacuum cleaner in point (d) hereafter. The calculated power over a cleaning test is the sum of the mains-power and nozzle power.
- (d) The average power demand of *battery-operated vacuum cleaners* during 50 nominal annual operational hours ( $h_{on-mode}$ ):

$$P = P_{aux} + P_{on} + h_m \times P_m$$

where

- $P_{aux}$  means the auxiliary power of the docking station with the vacuum cleaner not attached (being operated), including zero-load loss of the charger and possibly auxiliary power of the charger for computation and networked functions;
- $P_{on}$  means the average on-mode power is determined from the power  $P_{charge}$  and charging period  $T_{charge}$  needed to recharge the battery to its original state after the cleaning test has been run for an appropriate time period  $T_{operation}$  :

$$P_{on} = (T_{charge}/T_{operation}) \times P_{charge}, \text{ where}$$

the time periods are expressed in seconds, rounded to the nearest integer, and the power value is expressed in W rounded to 2 decimals;

- $P_m$  is the average maintenance power, expressed in W rounded to 2 decimals;
- $h_m$  is the number of hours of maintenance power per hour of on-mode, with

$$h_m = (h_{year} - h_{charge-mode} - h_{on-mode}) / h_{on-mode},$$

where

- $h_{on-mode}$  = annual hours in mode 50 h;
- $h_{charge-mode}$  = annual hours in charge mode (measured or default 710 h);
- $h_{year}$  = hours per year 8760 h;

## 2. ENERGY EFFICIENCY INDEX

The Energy Efficiency Index (EEI) is

$$EEI = \frac{AE}{SAE} \times 100$$

Where:

- $AE$  is the annual energy consumption in kWh/a, rounded to one decimal, with

$$AE = 17.4 \times SE, \text{ where}$$

- $SE$  is the specific energy consumption per single stroke, expressed in Wh/m<sup>2</sup> rounded to 2 decimals, with

$$SE = P/(v \times B),$$

where

- $P$  is the measured operating power in W, as determined under point 1 of this Annex depending on typology;
- $v$  is the test stroke speed (1800 m/h);
- $B$  is the cleaning head width, in m rounded to 2 decimals;
- $SAE$  is the standard annual energy consumption of 36 kWh/year.

## 3. SPEED

For commercial vacuum cleaners only, the soil-specific cleaning speed  $S$ , as a function of nozzle width and performance, expressed in m<sup>2</sup>/min rounded to one decimal, is calculated

appliances for carpet only (suffix c) as  
appliances for hard floor only (suffix hf) as  
appliances for general purpose (suffix gp) as

$$S_c = (v/60) \times B \times 0,42 \times (VAC_c/77,5\%),$$
$$S_{hf} = (v/60) \times B \times 0,42 \times (VAC_{hf}/62,5\%),$$
$$S_{gp} = (v/60) \times B \times 0,42 \times (VAC_{gp}/73,75\%)$$

where

- $v$  is the test stroke speed (1800 m/h),
- $B$  is the nozzle width (in m),
- 0,42 indicates that the cleaning result involves 3 double strokes at 0,7m per stroke,
- $VAC_c$ ,  $VAC_{hf}$ ,  $VAC_{gp}$  are floor-specific soil removal values (in % rounded to 1 decimal) defined as follows:

$VAC_c$  is the average dust and debris pick up for carpet, with  
 $VAC_c = 0,5 dpu_c + 0,5 deb_c$ , and

$VAC_{hf}$  is average dust and debris pick up on hard floor, with

$$VAC_{hf} = 0,5 dpu_{hf} + 0,5 deb_{hf};$$

$VAC_{hf}$  is average weighted dust and debris pick up on carpet and hard floor, with  $VAC_{gp} = 0,25 VAC_c + 0,75 VAC_{hf}$ .

#### 4. DUST PICK-UP

The dust pick-up on hard floor or carpet ( $dpu_{hf}$  or  $dpu_c$ ) shall be determined as the average of the results of at least 3 cleaning cycles with a forward stroke and the same number of cleaning cycles beginning with a backward stroke in a hard floor crevice test or carpet test respectively. All dust and debris pick-up tests shall be measured with the same nozzle and vacuum cleaner settings.

To correct for deviations from a test carpet's original properties, the dust pick-up on carpet ( $dpu_c$ ) shall be corrected with the measured dust pick-up of the reference vacuum cleaner system. Values of the measured dust pick-up of the tested vacuum cleaner with the test carpet, the dust pick-up of the reference vacuum cleaner system with the test carpet as is and in the original condition, for each of the cleaning cycles,  $dpu_c$ ,  $dpu_{cal}$  and  $dpu_{ref}$  shall be included in the technical documentation.

#### 5. DEBRIS PICK-UP

- (a) The debris pick-up on hard floor or carpet ( $deb_{hf}$  or  $deb_c$ ) shall be determined as the average of the results of at least 3 cleaning cycles beginning with a forward stroke and the same number of cleaning cycles beginning with a backward stroke. All debris and dust pick-up tests shall be measured with the same nozzle and vacuum cleaner settings.
- (b) The debris pick-up on carpet ( $deb_c$ ) shall be determined as the average of at least 3 cleaning cycles beginning with a forward stroke and the same number of cleaning cycles beginning with a backward stroke. The debris pick-up on carpet shall be measured with the same nozzle and vacuum cleaner settings as used in the measurement of dust pick-up on carpet.
- (c) The type, volume and distribution pattern of the test debris is different for household and commercial vacuum cleaners, as appropriate to be as close as possible to real-life and still reproducible between laboratories, following the appropriate test standards in Annex IVa and within the verification tolerances given in Annex IX.

#### 6. DUST RE-EMISSION

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

## 7. SOUND POWER LEVEL

Sound power level shall be determined on carpet or hardfloor or average<sup>15</sup> to be measured in the same setting and with the same nozzle as in the respective performance tests.

## 8. BATTERY RUNTIME

Determination of the battery runtime starts with a fully charged vacuum cleaner placed on the carpet. Original vacuum (negative) pressure is measured. Final runtime is when vacuum pressure is <40% of the original vacuum  $h_0$  or when battery is fully discharged<sup>16</sup>

## 9. REPAIRABILITY INDEX

The reparability index of household vacuum cleaners ( $R$ ) is an aggregated and normalised score, shall be calculated as follows:

$$R = 0,3 \times DD + 0,2 \times F + 0,2 \times T + 0,15 \times RI + 0,15 \times SP$$

where:

- DD is the “Disassembly Depth” score.
- F is the “Fasteners (type)” score.
- T is the “Tools (type)” score.
- *RI is the “Repair Information” score.*
- *SP is the “Spare Parts” score.*

The “Disassembly Depth” (DD), “Fasteners (type)” (F) and “Tools (type)” (T) scores are based on the aggregation of the following priority part level scores:

- *SM is the suction motor.*
- *N is the nozzle.*
- *F is the filters.*
- *DR is the dust receptacle.*
- *MPB is the electromechanical power button*
- *PSS is the power supply systems (power cord, power cord mechanism and battery)*
- *ES is the extension systems (tube extension and primary hose).*

If any of the priority parts listed above is present in a product more than once, only the one which delivers the lowest score shall be considered in the calculation of the “Disassembly

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<sup>15</sup> For discussion

<sup>16</sup> Double-check the definition, i.e. until nominal cell voltage e.g. 1.0V for Li-ion cells or 70% of nominal capacity.

Depth” (DD), “Fasteners (type)” (F) and “Tools (type)” (T) scores. If a priority part is not present in the product, the highest point level for each score shall be considered for this part.

*The parts above are also divided into ‘primary’ and ‘secondary’ parts.*

*Primary parts are suction Motor (SM), Dust Receptacle (DR), Electromechanical Power Button (MPB), and Power Supply Systems (PSS).*

*Secondary parts are Nozzle (N), Filters (F) and Extension systems (ES).*

**The “Disassembly Depth” (DD) score shall be calculated as follows<sup>17</sup>:**

$$DD=(DDSM*0,19)+(DDN*0,09)+(DDF*0,09)+(DDDR*0,18)+(DDMPB*0,18)+(DDPSS*0,18)+(DDES *0,09)$$

Disassembly Depth (DD) assessment at part level

The Disassembly Depth score (DDi) for each priority part i (DDSM, DDN, DDF, DDR, DDMPB, DDPSS, DDES) shall be calculated based on the number of steps required to remove a part from a product, without damaging the product. The counting of the steps for each part starts from the product fully assembled. Points are assigned according to Table 5:

*Table 5. Disassembly Depth score number of disassembly steps*

Number of disassembly steps For primary parts	Score	Number of disassembly steps for secondary parts	Score
$DDi < 6$	10	$DDi < 3$	10
$6 \leq DDi < 12$	7	$3 \leq DDi < 4$	7
$12 \leq DDi < 18$	4	$4 \leq DDi < 6$	4
$DDi \geq 18$	0	$DDi \geq 6$	0

For the calculation of disassembly steps, the following rules shall apply:

- the disassembly depth count is completed when the target part is separated and individually accessible;
- where multiple tools need to be used simultaneously, the use of each tool counts as a separate step;
- operations related to cleaning, removing traces or heating are counted as steps;
- the disassembly depth shall be calculated on the basis of the repair and maintenance information, and of the description of the disassembly steps for each priority part given in the technical documentation;

<sup>17</sup> Should it include the main electronic board/CPU/power control board?

- where remote notification or authorisation of serial numbers is necessary for the full functionality of the spare part and the device, each of these actions is counted as ten additional disassembly steps.

**The “Fasteners (type)” (F) score is calculated as follow:**

$$F=(FSM*0,19)+(FN*0,09)+(FF*0,09)+(FDR*0,18)+(FMPB*0,18)+(FPSS*0,18)+(FES*0,09)$$

Fasteners (type) (F) assessment at part level:

The “Fasteners (type)” scores (Fi) for each priority part i (FSM, FN, FF, FDR, FMEB, FEPS, FEPS, FPSS, FES) are assigned according to the level of removability and reusability of the fasteners used in the device assembly. Reusable fasteners get 10 points and removable fasteners get 5 points.

The assessment of the type of fasteners is based on the disassembly process to remove the specific priority part, starting from the previous priority part in a disassembly sequence already removed.

In case different types of fasteners are encountered in the disassembly of a priority part, the worst score shall be considered.

The Fi scores shall be calculated on the basis of the repair and maintenance information, and of the description of the fasteners for each priority part given in the technical documentation.

**The “Tools (type)” (T) score shall be calculated as follows:**

$$T=(TSM*0,19)+(TN*0,09)+(TF*0,09)+(TDR*0,18)+(TMPB*0,18)+(TPSS*0,18)+(TES*0,09)$$

Tools (type) (T) assessment at part level

The “Tools (type)” scores (Ti) for each priority part i (TSM, TN, TF, TDR, TEPS, TEPS, TMPB, TPSS, TES) are assigned according to the complexity and availability of the tools needed for its replacement. Points are assigned according to Table 6:

*Table 6. Tools (type) score*

<b>Use of tools</b>	<b>Score</b>
Repair possible without tools, with commercially available tools or with tools supplied with the spare part or with the household vacuum cleaners	10
Repair only possible with tools that are exclusively available to a professional repairer	7
Repair only possible with <i>proprietary</i> tools that are exclusively available to authorised service partners	3

Not removable with any existing tool	0
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### Repair Information

The Repair Information score (RIS) shall be calculated at product level. Points are assigned according to Table 7:

Table 7. Repair information score

Repair information	Score
Availability of repair and maintenance information at no cost <i>for all priority parts</i> for professional repairers, and availability of repair and maintenance information at no cost <i>for end-user for secondary parts and dust receptacle</i> .	10
Availability of repair and maintenance information at no cost <i>for all priority parts</i> to professional repairers	5
Availability of repair and maintenance information with a reasonable and proportionate fee for professional repairers	0

A fee shall be considered reasonable if it does not discourage access by failing to take into account the extent to which the professional repairer uses the information.

### Spare parts

The “Spare Parts” (SP) score shall be calculated at product level. Points are assigned according to Table 8:

Table 8. Spare Parts score

Spare part availability	Score
Spare parts for <i>secondary parts and dust receptacle</i> are available to end users and professional repairers; all the other <i>priority</i> parts are available to professional repairers;	10
Spare parts for <i>secondary parts</i> are available to professional repairers and end-user; all the other <i>priority</i> parts are available to professional repairers;	5
All priority parts are available to professional repairers.	1

**ANNEX IVa**  
**Measurement and calculation methods**

**Transitional Methods**

*Table*

**References and qualifying notes for vacuum cleaners**

*(The source of all references is IEC unless otherwise indicated)*

**Dry vacuum cleaners**

<b>Parameter</b>	<b>Reference/ Title</b>	<b>Notes and short description</b>
Annual energy consumption (AE)	EN 60312-1:2017/A11:2022 - Vacuum cleaners for household use - Part 1: Dry vacuum cleaners - Methods for measuring the performance  <i>Based on the draft version of IEC 62885-2:2021. For description of household debris see</i>  <b><i>The first edition of EN 60312-1 (2017) is harmonised excluding clause 5.9 (Performance with loaded dust receptacle)</i></b>	
Maximum operational power (P)		
Dust pick up on carpet (dpu c)		
Dust pick up hard floor (dpu hf)		
Debris pick-up on carpet (deb c)		
Debris pick-up on hard floor (deb hf)		
Dust re-emission (dre)		
Sound power level (in dB(A))	EN IEC 60704-2-1:2020 - Household and similar electrical appliances - Test code for the determination of airborne acoustical noise - Part 2-1: Particular requirements for dry vacuum cleaners  <b><i>The first edition (2017) is harmonised</i></b>	
Definition 'household'(safety standard)	EN 60335-2-2:2010 /AMD1:2013/AMD11:2012 Household and similar electrical appliances - Safety - Part 2-2: Particular requirements for vacuum cleaners and water-suction cleaning appliances  <b><i>EN 60335-2-3:2010 first edition is harmonised</i></b>	
Household debris (medium-size debris)	IEC TS 62885-1:2020 Surface cleaning appliances – Part 1: General requirements on test material and test equipment	Nylon (PA6.6) nuts and screws ISO 4032 (nuts, M3, weight approx. 0.5 g/piece) and ISO 4766 (screws, M3 x 6, approx. 0.35 g/piece) , distributed by weight (g/m <sup>2</sup> test surface)
Repairability	EN 45554:2020. General methods for	

	the assessment of the ability to repair, reuse and upgrade energy-related products	
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**Commercial mains-operated dry vacuum cleaners** <sup>18</sup>

Parameter	Reference/ Title	Notes and short description
Commercial test debris, type	EN IEC 62885-8:2019. Surface cleaning appliances – Part 8: Dry vacuum cleaners for commercial use – Methods for measuring the performance	<i>Debris type: Brass (CuZn37) nuts ISO 4032-M3-CU2 and washers ISO 7089-3-200 CU2.</i>
Debris distribution	<i>For miscellaneous tests refers to IEC 62885-2:2021 except for noise and rated input power uses IEC 60335-2-69, not applicable here</i>	<i>Perpendicular to the direction of testing rows of 5 nuts and 5 washers 140 mm apart over the full length of the 700 mm testing area (exact drawing given in standard)</i>
Definition ‘commercial’(safety standard)	IEC 60335-2-69:2021. Household and similar electrical appliances - Safety - Part 2-69: Particular requirements for wet and dry vacuum cleaners, including power brush, for commercial use	

**Battery-operated dry vacuum cleaners**

Parameter	Reference/ Title	Notes and short description
Auxiliary power $P_{aux}$ (in W)	EN IEC 62885-4:2020/AMD1:2023. Surface cleaning appliances – Part 4: Cordless dry vacuum cleaners for household or similar use – Methods for measuring the performance <i>Refers to IEC 62885-2:2021</i>	<i>Pc1, power intake of docking station without vacuum cleaner (30 min. test)</i>
Charging power $P_{charge}$ (in W)		<i>Pc2, average power intake during charging after cleaning test</i>
Maintenance power $P_m$ (in W)		<i>Pc3, average power intake with fully charged<sup>19</sup> battery (4h test)</i>
$T_{operation}$ (in s)		<i>Toperation, time for cleaning test (300s)</i>
$T_{charge}$ (in s)		<i>Tcharge, time for recharging</i>

<sup>18</sup> Separate sound power test standard for commercial VC does not apply

<sup>19</sup> To double-check a definition for “fully-charged”, i.e. until nominal capacity

		<i>battery to original state after the test</i>
Average on-mode power $P_{on}$ (in W)		$P_{eff} = (T_{charge}/T_{operation}) \times P_{charge}$
Battery runtime (in s)		Start fully charged <sup>20</sup> VC on carpet. Final runtime is when vacuum is <40% of original vacuum $h_0$ or when battery is fully discharged <sup>21</sup>
Battery rated capacity (mAh)	IEC 61960-3:2017, ...Secondary lithium cells and batteries for portable applications –Part 3: Prismatic and cylindrical lithium secondary cells, and batteries ...	
Battery endurance (number of cycles)	IEC 61951-2:2017+AMD1:2022 CSV ... Secondary sealed cells and batteries for portable applications - Part 2: Nickel-metal hydride ETSI TR 125 914 -V16.0.0, chapter 9. Base station simulator for battery endurance test. ECMA 383 endurance test ambient conditions	Requirement 700 or 800 cycles until <70% or 80% of original capacity C. The IEC 61960-3 standard considers a Depth of Discharge (DoD) of 70% to be ‘fully discharged’. Fully charged equals nominal capacity. These standards follow the ones in the ecodesign regulation (EU) 2023/1670, given that the new Battery Regulation is not specific on the issue.
Sound power level in dB(A)	EN IEC 60704-2-1:2020 - Household and similar electrical appliances - Test code for the determination of airborne acoustical noise - Part 2-1: Particular requirements for dry vacuum cleaners	

### Robot vacuum cleaners

Parameter	Reference/ Title	Notes and short description
Off-mode power $P_{off}$ (in W)	IEC/ASTM 62885-7:2020 +AMD1:2022 CSV (Consolidated version). Surface cleaning appliances – Part 7: Dry-cleaning robots for household and similar use – Methods for measuring the performance	<i>Power intake of docking station without vacuum cleaner</i>
Standby power $P_{sb}$ (in W)		<i>Average power intake with fully charged battery</i>

<sup>20</sup> The power settings should be identical to those for performance testing. Double-check the definition.

<sup>21</sup> Double-check the definition, i.e. until nominal cell voltage e.g. 1.0V for Li-ion cells or 70% of nominal capacity.

Note for CF: The harmonised standards for the ecodesign regulation of vacuum cleaners (EU) No 666/2013 were developed under mandate M/540, published on 11 December 2015 (Commission Implementing Decision C(2015)8753)

Note for CF: Commission Communication 2017/C 267/02 on transitional methods for (EU) No 666/2013 published OJ, C 267/p. 4 , 11.8.2017

Note for CF:

IEC/ASTM 62885-7:2020+AMD1:2022 CSV cancels the box test, extends straight-line tests to also remove different kinds of debris from hard floors and carpets as well as fibers from carpets. As a miscellaneous test adds a method for determination of energy consumption, which may be of interest for low power mode requirements. For future review clause: Investigate full energy requirements for robot (?)

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ANNEX V

**Product information sheet**

The supplier shall enter the information part of the product information sheet of vacuum cleaners pursuant to point 1(b) of Article 3 into the product database by the supplier according to Table 9.

The user manual or other literature provided with the product shall clearly indicate the link to the model in the product database as a human-readable Uniform Resource Locator (URL) or as QR code or by providing the product registration number.

Table 9  
*Content, order and format of the product information sheet*

<b>Supplier's name or trade mark:</b>			
<b>Supplier's address:</b>			
<b>Model identifier:</b>			
<b>Type of vacuum cleaner</b>	[mains-operated, battery-operated, hybrid] [general purpose, hard floor, carpet] [intended for household use, intended for commercial use]		
<b>General product parameters:</b>			
Parameter	Value	Parameter	Value
Annual energy consumption (kWh/a)	x,x		
Energy Efficiency Index <sup>a</sup>	xx	Energy efficiency index class	[A/B/C/D/E/F/G]
Cleaning Speed Index (m <sup>2</sup> /min) <sup>b</sup>	x,x	Cleaning Speed class <sup>b</sup>	[A/B/C/D/E]
Dust re-mission (%)	x,xxx		
Repairability (index)	xx	Repairability class	[A/B/C/D/E]
Sound power (dB)	xx	Sound power class	[A/B/C/D]
Maximum usable volume muv (l)	x,x		
Dust pick-up on hard	xx,x		

floor (%)			
Dust pick-up on carpet (%)	xx,x		
Debris pick-up on hard floor (%)	xx,x		
Debris pick-up on carpet (%)	xx,x		
Airborne acoustical noise emissions (dB(A) re 1 pW)	x,xx	Noise power class	[A/B/C/D]
Maintenance mode (W) (where applicable)	x,xx	No classes	
Battery runtime (minutes)	xx		
Battery endurance (number of cycles)	xxxx		

**Additional information:**

Weblink to the supplier's website

<sup>a</sup> For all vacuum cleaners in scope.

<sup>b</sup> For commercial vacuum cleaners only

*ANNEX VI*  
**Technical documentation**

1. The technical documentation referred to in Article 3(1)(d) shall include:
  - (a) identification and signature of the person empowered to bind the supplier;
  - (b) information as set out in Annex V;
  - (c) information as set out in Table 10;
  - (d) where appropriate, the references of the harmonised standards applied;
  - (e) where appropriate, the other technical standards and specifications used;
  - (f) the details and results of calculations performed in accordance with Annex III.

*Table 10*  
*Information to be included in the technical documentation*

PARAMETER	UNIT	VALUE
Annual energy consumption $AE_c, AE_{hf}, AE_{gp}$	kWh/year	x,xx
Average specific energy consumption $ASE_c, ASE_{hf}, ASE_{gp}$	Wh/m <sup>2</sup>	x,xxx
Specific energy consumption $SE_c, SE_{hf}$	Wh/m <sup>2</sup>	x,xxx
Dust pick up $dpu_c, dpu_{hf}, dpu_{gp}, dpu_m, dpu_{cal}, dpu_{ref}$	%	x,xxx
Debris pick-up $deb_c, deb_{hf}, deb_{gp}$	%	x,xxx
Dust re-emission $dre_c, dre_{hf}$	%	x,xxx
Measured energy in test room (if applicable) $E_{measured}$	Wh	x,xxx
Charging energy (if applicable) $E_{charge}, E_{charge,hf}$	Wh	x,xxx
Power during cleaning, $P_c, P_{hf}$	W	x,xx
Average power equivalent of battery operated active nozzles (if applicable) $NP_c, NP_{hf}$	W	x,xx
Electricity consumption of the battery operated active nozzle necessary to return the initially fully charged battery to its originally fully charged state after a cleaning cycle $E_c, E_{hf}$	Wh	x,xxx
The total time in a cleaning cycle in which the battery operated active nozzle is activated $t_{bat,c}$	H	x,xxxx

$t_{bat_{hf}}$		
The surface area passed over by the cleaning head in a cleaning cycle, $A_c$ , $A_{hf}$	$m^2$	x,xxx
Sound power level	dB(A)	x,xx
Battery runtime (if applicable)	min	x
Cleaning Speed (commercial vacuum cleaners only)	$m^2/min$	x,xx

2. Where the information included in the technical documentation for a particular vacuum cleaner model has been obtained:

- from an equivalent model of the same or a different manufacturer, or
- by calculation on the basis of design or extrapolation from another model of the same or a different manufacturer, or both,

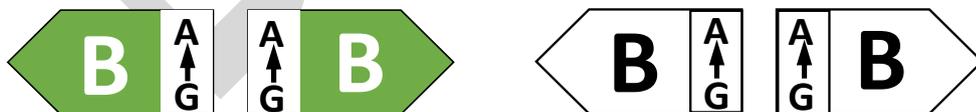
the technical documentation shall include, as appropriate, a list of the all equivalent vacuum cleaners, the details of such calculation, the assessment undertaken by manufacturers to verify the accuracy of the calculation and, where appropriate, the declaration of identity between the models of different manufacturers.

## ANNEX VII

### Information to be provided in visual advertisements, in promotional material, in distance selling except distance selling on the internet

1. In visual advertisements for vacuum cleaners, for the purposes of ensuring conformity with the requirements laid down in Article 3(1)(e) and Article 4(c), the energy efficiency class and the range of energy efficiency classes available on the label shall be shown an arrow matching the letter of the energy class, as indicated in Figure 1.
2. In promotional material for household vacuum cleaners, for the purposes of ensuring conformity with the requirements laid down in Article 3(1)(f) and Article 4(d), the energy efficiency class and the range of energy efficiency classes available on the label shall be shown with an arrow matching the letter of the energy class, as indicated in Figure 1.
3. Any paper based distance selling of vacuum cleaners must show the energy efficiency class and the range of energy efficiency classes available on the label as with an arrow matching the letter of the energy class, as indicated in Figure 1.
4. The energy efficiency class and the range of energy efficiency classes shall be shown, as indicated in Figure 1, with:
  - (a) For vacuum cleaners: an arrow containing the letter of the energy efficiency class, in white and in a font size at least equivalent to that of the price, when the price is shown; and
  - (b) the colour of the arrow matching the colour of the energy efficiency class; and
  - (c) the range of available energy efficiency classes in 100 % black; and
  - (d) the size shall be such that the arrow is clearly visible and legible. The letter in the energy efficiency class arrow shall be positioned in the centre of the rectangular part of the arrow, with a border of 0,5 pt in black placed around the arrow and the letter of the energy efficiency class.

By way of derogation, if the visual advertisements, technical promotional material or paper based distance selling is printed in black and white, the colour of the arrow can be in black and white in that visual advertisements, technical promotional material or paper based distance selling.



*Figure 1: Coloured/monochrome left/right arrow example, with range of energy efficiency classes indicated*

5. Telemarketing based distance selling must specifically inform the customer of the energy classes of the product and of the range of energy classes available on the label, and that the customer can access the label and the product information sheet through the product database website, or by requesting a printed copy.

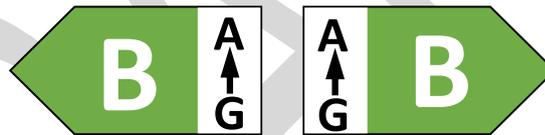
6. For all the situations mentioned in points 1 to 3 and 5, it must be possible for the customer to obtain, on request, a printed copy of the label and the product information sheet.

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## ANNEX VIII

### Information to be provided in the case of distance selling through the internet

1. The electronic label made available by suppliers in accordance with point 1(g) of Article 3 shall be shown on the display mechanism in proximity to the price of the product. The size shall be such that the label is clearly visible and legible and shall be proportionate to the size specified in Annex III. The label may be displayed using a nested display, in which case the image used for accessing the label shall comply with the specifications laid down in point 2 of this Annex. If nested display is applied, the label shall appear on the first mouse click, mouse roll-over or tactile screen expansion on the image.
2. The image used for accessing the label in the case of nested display shall:
  - (a) be an arrow in the colour corresponding to the energy efficiency class of the product on the label; and
  - (b) indicate the energy efficiency class of the product on the arrow in white in a font size equivalent to that of the price; and
  - (c) have one of the following two formats, and its size shall be such that the arrow is clearly visible and legible. The letter in the energy efficiency class arrow shall be positioned in the centre of the rectangular part of the arrow:



*Figure 2: Coloured left/right arrow example, with range of energy efficiency classes indicated*

3. In the case of nested display, the sequence of display of the label shall be as follows:
  - (a) the images referred to in point 2 of this Annex shall be shown on the display mechanism in proximity to the price of the product;
  - (b) the images shall link to the label as set out in Annex III;
  - (c) the label shall be displayed after a mouse click, mouse roll-over or tactile screen expansion on the image;
  - (d) the label shall be displayed by pop up, new tab, new page or inset screen display;
  - (e) for magnification of the label on tactile screens, the device conventions for tactile magnification shall apply;
  - (f) the label shall cease to be displayed by means of a close option or other standard closing mechanism;

- (g) the alternative text for the graphic, to be displayed on failure to display the label, shall be the energy efficiency classes of the product in a font size equivalent to that of the price.
4. The electronic product information sheet made available by suppliers in accordance with point 1(h) of Article 3 shall be shown on the display mechanism in proximity to the price of the product. The size shall be such that the product information sheet is clearly visible and legible. The product information sheet may be displayed using a nested display or by referring to the product database, in which case the link used for accessing the product information sheet shall clearly and legibly indicate 'Product information sheet'. If a nested display is used, the product information sheet shall appear on the first mouse click, mouse roll-over or tactile screen expansion on the link.

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## ANNEX IX

### Verification procedure for market surveillance purposes

1. The verification tolerances set out in this Annex relate only to the verification of the declared values by Member State authorities and shall not be used by the manufacturer, importer or authorised representative as an allowed tolerance to establish those values in the technical documentation or in interpreting these values with a view to achieving compliance or to communicate better performance by any means.
2. Where a model is not in conformity with the requirements laid down in Article 6, the model and all equivalent models shall be considered not compliant.
3. As part of verifying the compliance of a product model with the requirements laid down in this Regulation pursuant to Article 3(2) of Directive 2009/125/EC, the authorities of the Member States shall apply the following procedure:
  - (1) the Member State authorities shall verify one single unit of the model;
  - (2) the model shall be considered to comply with the applicable requirements where it meets all the following conditions:
    - (a) the declared values given in the technical documentation pursuant to point 2 of Annex IV to Directive 2009/125/EC, and, where applicable, the values used to calculate such declared values, are not more favourable for the manufacturer, importer or authorised representative than the results of the corresponding measurements carried out pursuant to point 2(g) of that Annex;
    - (b) the declared values meet any requirements laid down in this Regulation, and any required product information published by the manufacturer or importer does not contain values that are more favourable for the manufacturer, importer or authorised representative than the declared values;
    - (c) when the Member State authorities check the unit of the model, they find that the manufacturer, importer or authorised representative has put in place a system that complies with the requirements in the second paragraph of Article 6<sup>22</sup>;
    - (d) when the Member State authorities check the unit of the model, it complies with the energy requirements in point 1, functional requirements in point 2, [*low power mode requirements in point 3*]<sup>23</sup>, resource efficiency requirements in point 4 and information requirements in point 5 of Annex II; and
    - (e) when the Member State authorities test the unit of the model, the determined values, that is to say the values of the relevant parameters as measured in testing and the values calculated from these measurements, comply with the validity criteria set out in Table 11 and the respective verification tolerances set out in Table 11.
4. Where the results referred to in point 3.(2)(a), (b), (c) or (d) are not achieved, the model and all equivalent models shall be considered not to comply with this Regulation.

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<sup>22</sup> Is it relevant for vacuum cleaners to have an article 7 on software updates?

<sup>23</sup> Only if inserted.

5. If the result referred to in point 3(2)(e) is not achieved, the Member State authorities shall select 3 additional units of the same model for testing. As an alternative, the 3 additional units selected may be of one or more equivalent models.
6. The model shall be considered to comply with the applicable requirements where, for the 3 units referred to in point (5), the arithmetical mean of the determined values complies with the respective verification tolerances set out in Table 11.
7. Where the result referred to in point 6. is not achieved, the model and all equivalent models shall be considered not in compliance with this Regulation.
8. The Member State authorities shall provide all relevant information to the authorities of the other Member States and to the Commission without delay after a decision is taken on the non-compliance of the model pursuant to points 2, 4 or 7.
9. The Member State authorities shall use the measurement and calculation methods set out in Annex III.
10. The Member State authorities shall only apply the verification tolerances that are set out in Table 11 and shall only use the procedure described in points 1 to 7 for the requirements referred to in this Annex. No other tolerances, such as those set out in harmonised standards or in any other measurement method, shall be applied. Tolerances for household and commercial vacuum cleaners are identical, unless indicated differently.

*Table 11 - Verification tolerances*

<b>Parameter</b>	<b>Verification tolerances</b>
Annual energy consumption ( <i>AE</i> )	The determined value* shall not exceed the declared value by more than 10 %.
Power demand ( <i>P</i> )	The determined value* shall not exceed the declared value by more than 4%.
Dust pick-up on carpet ( <i>dpu<sub>c</sub></i> )	The determined value* shall not be lower than the declared value by more than 6%-points
Debris pick-up on carpet ( <i>deb<sub>c</sub></i> )	The determined value* shall not be lower than the declared value by more than 6%-points
Dust pick-up on hard floor ( <i>dpu<sub>hf</sub></i> )	The determined value* shall not be lower than the declared value by more than 6%-points
Debris pick-up on hard floor ( <i>deb<sub>hf</sub></i> )	The determined value* shall not be lower than the declared value by more than 6%-points
Dust re-emission ( <i>dre</i> )	The determined value* shall not exceed the declared value by more than 0,012 %-points.
Pon	The determined value* shall not exceed the declared value by more than 4%.
Paux	The determined value* shall not exceed the declared value by more than 4%.
Poff	The determined value* shall not exceed the declared value by more than 0.10W
Sound power level	The determined value* shall not exceed the declared value by more than 2 dB(A).
Operational motor lifetime	The determined value* shall not be lower than the declared value by more than 25h.

Motion resistance	The determined value* shall not exceed the declared value by more than 4 N.
Battery runtime	The determined value* shall not be lower by more than 5% of the declared value.
Durability of the hose	The determined value* shall not be lower than the declared value by more than 100 oscillations.

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