

Working Document on a possible

COMMISSION DELEGATED REGULATION

**Implementing Directive 2010/30/EU of the European Parliament and of the Council with
regard to energy labelling of vacuum cleaners**

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THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2010/30/EU of the European Parliament and of the Council on the indication by labelling and standard product information of the consumption of energy and other resources by energy related products¹, and in particular Article 11 thereof,

Whereas:

- (1) Directive 2010/30/EU requires the Commission to adopt delegated acts for 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 European Union. In addition to the energy efficiency improvements already achieved, the scope for further reducing the energy consumption of vacuum cleaners is substantial.
- (5) Wet vacuum cleaners have particular characteristics and should therefore be exempted from the scope of this delegated Regulation.
- (6) 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 bodies, as listed in Annex I to Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations and of rules on Information Society services².
- (7) This delegated Regulation should specify a uniform design and content for the label for vacuum cleaners.
- (8) In addition, this delegated Regulation should specify requirements as to the technical documentation and the fiche for vacuum cleaners.
- (9) Moreover, this delegated 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.

¹ [NOTE: Directive number and OJ L reference to be inserted as soon as it is known, i.e. after the final adoption and publication of the recast of Directive 1992/75/EEC –expected around May/June 2010]

² OJ L 204, 21.7.1998, p. 37.

- (10) It is appropriate to provide for a review of the provisions of this delegated Regulation taking into account technological progress.
- (11) In order to facilitate the transition from Directive 95/13/EC to this delegated Regulation, provisions should be made that vacuum cleaners labelled in accordance with this delegated Regulation should be considered as compliant with Directive 95/13/EC.
- (12) Directive 95/13/EC should therefore be repealed.

HAS ADOPTED THIS DELEGATED 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 that are placed on the market after 12 months after entry into force of the delegated Regulation.
2. This Regulation shall not apply to
 - Wet,
 - Wet and dry,
 - Robotic,
 - Industrial, or
 - Central vacuum cleaners
 - Or to floor polishers.

Article 2
Definitions

In addition to the definitions set out in Article 2 of Directive 2009/125/EC, the following definitions shall apply for the purpose of this Regulation:

- 1) “vacuum cleaner” means an appliance that removes dry material (dust, fibre, threads) from the surface to be cleaned by an airflow created by a vacuum developed within the unit. The material thus removed is separated in the appliance and the cleaned suction air is returned;
- 2) “wet and dry vacuum cleaner” means a vacuum cleaner designed to remove a significant volume, of more than 2.5 litres of liquid
- 3) “wet vacuum cleaner” means an electrically operated appliance that removes dry and/or wet material (soil) from the surface by use of water-based detergent or steam to be cleaned by an airflow created by a vacuum developed within the unit. The

material thus removed is separated in the appliance and cleaned suction air is returned to the ambient;

- 4) “floor polisher” means an electrical appliance that creates a shiny effect on certain kind of floor. The process usually needs to put a polish mean on the floor and remove, by the polisher, part of the material. Floor polisher, as accessory function, usually removes the excessive material from the floor by an air-flow created by a vacuum developed within the appliance.
- 5) “water filter vacuum cleaner” means a vacuum cleaner that uses water as the main filter medium; the suction air is forced through the water entrapping the removed dry material as it passes through. Vacuum cleaners which use less than [1] litre of water shall not be considered “water filter vacuum cleaners”.
- 6) “Robot VC” means a battery powered automatic floor cleaner that can be operated without (or with) human control within a defined perimeter. The robot VC consists of the mobile part and may have a docking station and /or other accessories to assist its operation.
- 7) “central vacuum cleaner” means a vacuum cleaner with a fixed (not movable) vacuum source location. The hose connections are located at fixed positions in the building.
- 8) “household vacuum cleaner” means a vacuum cleaner (including hybrid products that can be both mains and/or battery powered) used primarily in household or domestic situations; the manufacturer declares the product's compliance with the Low Voltage Directive (LVD) in the Declaration of Conformity (DoC).
- 9) “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; the manufacturer declares the product's compliance with the Machinery Directive (MD) in the Declaration of Conformity (DoC).
- 10) “industrial vacuum cleaner”: means a mobile or stationary vacuum cleaner designed to be part of a production process, and is neither a household nor a commercial vacuum cleaner. Vacuum cleaners designed :
 - For hazardous material
 - As part of an industrial machine or toolShall be considered “industrial vacuum cleaner”:
- 11) Hard floor vacuum cleaner means a vacuum cleaner supplied without any nozzle which is designed or suitable for use on carpets.
- 12) Carpet vacuum cleaner means a vacuum cleaner supplied without any nozzle which is designed or suitable for use on hard floors.
- 13) “double stroke” means one forward and one return strokes to be carried out at a specified stroke speed over the test area according to the appropriate stroke pattern;
- 14) “cleaning cycle” means a sequence of two double strokes;
- 15) “dust removal” means the capacity of removing dust from specific surface(s) during the cleaning cycle;

- 16) “Dust re-emission efficiency”: is the ratio (in percent) of the all dust of a specific particle size which emitted by a vacuum cleaner to dust of the same particles when dust of a specific amount and particle size is fed to the suction inlet while the vacuum cleaner is operating at its maximum power setting. 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 (e.g. from brushes in the motor).
- 17) “equivalent vacuum cleaner” means a model of vacuum cleaner placed on the market with the same input power, technical and performance characteristics, energy consumption and airborne acoustical noise as another model of vacuum cleaner placed on the market under a different commercial code number by the same manufacturer.
- 18) “battery operated vacuum cleaner” means a vacuum cleaner powered only by batteries.
- 19) “battery operated active nozzle” means a cleaning head provided with an agitation device powered by batteries to assist dirt removal.

Article 2
Responsibilities of suppliers

1. Suppliers shall ensure that:
 - (1) each vacuum cleaner is supplied with a label, stating:
 - (a) the energy efficiency class as set out in point 1 of Annex I, and
 - (b) the separate performance classes of the dust removal on a carpet and on hard floor with crevice as set out in point 2 of Annex I,
 - (d) the filtration efficiency as set out in point 3 of Annex I, and
 - (e) the average annual energy consumption calculated in accordance with Annex II, and
 - (f) the airborne acoustical noise emissions;
 - (2) a product fiche, as set out in Annex III, is made available;
 - (3) the technical documentation as set out in Annex IV is made available on request to the authorities of the Member States and to the Commission;
 - (4) from 12 months after entry into force of the delegated Regulation:
 - (a) any advertisement for a specific model of vacuum cleaner contains the energy efficiency class, if the advertisement discloses energy-related or price information; and
 - (b) 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 energy efficiency classes shall be based on the Energy Efficiency calculated in accordance with Annex II. The dust removal performance classes shall be based on the dust removal ability calculated in accordance with Annex II.
3. The format of the label shall be as set out in Annex V.

- 4 However, the obligations in point (1) above shall only apply to water filter vacuum cleaners from 40 months after entry into force of the delegated Regulation:
- 5 The obligations in point (1) shall not apply to battery operated vacuum cleaners. However, suppliers may choose to provide a label in respect to any specific model of battery operated vacuum cleaner. In this case all the obligations in point (1) shall apply in respect of all other equivalent battery operated vacuum cleaners as listed in the relevant technical documentation mentioned in Annex IV point 2.

Article 4
Responsibilities of dealers

Dealers shall ensure that:

- (1) each vacuum cleaner, at the point of sale, bears the label provided by suppliers in accordance with Article 3(1) on the outside of the front or top of the vacuum cleaner, in such a way as to be clearly visible;
- (2) from 16 months after entry into force of the delegated Regulation:
 - (a) vacuum cleaners offered for sale, hire or hire-purchase where the end-user cannot be expected to see the product displayed, are marketed with the information provided by suppliers in accordance with Article 3(1)-(2) in the format specified in Annex VI;
 - (b) 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; and
 - (c) 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.
- (3) However, the obligations in point (2) above shall only apply to water filter vacuum cleaners from 40 months after entry into force of the delegated Regulation
- (4) The obligations in point (2) above shall only apply to battery operated vacuum cleaners which suppliers have chosen to label, and to their equivalent models.

Article 5
Measurement methods

The information to be provided under Articles 3 and 4 shall be obtained by reliable, accurate and reproducible measurement procedures, which take into account the recognised state of the art measurement methods.

Article 6
Verification procedure for market surveillance purposes

When Member States assess the conformity of the declared energy efficiency class, performance class of the dust removal on a carpet, performance class of the dust removal on a hard floor with crevice, dust re-emission, annual energy consumption, and airborne acoustical noise emissions, they shall apply the procedure laid down in Annex VII.

Article 7
Revision

The Commission shall review this delegated Regulation in light of technological progress no later than five years after its entry into force.

Article 8
Transitional provision

Articles 3(1) point 4 and 4(2) shall not apply to printed advertisement and printed technical promotional material published before 16 months after the entry into force of the delegated Regulation.

Article 10
Entry into force

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

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

Done at Brussels, [...]

For the Commission

The President

ANNEX I
Energy efficiency 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 point 1 of Annex II.

Table 1: Energy efficiency classes

energy efficiency class	Annual Energy Consumption		<i>Peff</i>
	min	max	<i>30cm head</i>
	kWh/yr	kWh/yr	<i>W</i>
A+++		10	<i>269</i>
A++	10	16	<i>430</i>
A+	16	22	<i>591</i>
A	22	28	<i>752</i>
B	28	36	<i>967</i>
C	36	44	<i>1182</i>
D	44	52	<i>1397</i>
E	52	62	<i>1612</i>
F	62	78	<i>2096</i>
G	78	∞	

2. DUST REMOVAL PERFORMANCE CLASSES

The dust removal performance class of a vacuum cleaner shall be determined in accordance with the dust removal ability after one cleaning cycle on a test carpet (D_c) and on a test hard floor with crevice (D_{hf}) as set out in Table 2.

The dust removal ability of a vacuum cleaner on a test carpet (D_c) and on a test hard floor with crevice (D_{hf}) shall be determined in accordance with Annex II, point 2.

Table 2: Dust removal performance classes

Dust removal performance class	Dust removal ability on a carpet (D_c)	Dust removal ability on a hard floor with crevices (D_{hf})
A (most efficient)	>1.308	>1.042
B	>1.154	>1
C	>1	>0.947
D	>0.846	>0.895
E	>0.692	>0.842
F	>0.538	>0.789
G (least efficient)	≤ 0.538	≤ 0.789

The calculation of this ratio is done

- For carpet D_c is dust pick up/55
- For hard floor D_{hf} is dust pick up/85

3. FRACTIONAL FILTRATION EFFICIENCY

The fractional filtration efficiency of a vacuum cleaner (0.4-4 μ) shall be declared as absolute value in percentage rounded at the second digit after the comma.

Annex II 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 method, which takes into account the generally recognised state of the measurement and calculation methods, including methods set out in documents the reference numbers of which have been published for the purpose in the Official Journal of the European Union.

2. **These methods and calculations shall either**

- **Follow an interim measurement and calculation method : published for the purpose in the Official Journal of the European Union or;**
- **Follow methods for which the reference numbers have been published referred to in point 1 above.**

3. Where the Vacuum Cleaner allows power input to be adjusted the maximum power setting shall be selected (with the vacuum cleaner set to 'hard floor' or 'carpet' respectively).

4. CALCULATION OF THE ANNUAL ENERGY CONSUMPTION

The average Annual Energy Consumption (AE_C) is calculated, in kWh/year and rounded to one decimal place, as follows:

$$AE_C = \left(\frac{SE_c}{10} \times F_c \times P_c \times A_c + \frac{SE_{hf}}{10} \times F_{hf} \times P_{hf} \times A_{hf} \right) \times 50 + (t_i \times P_{eff}) \text{ kWh}$$

where

- SE_c = average Specific Energy Consumption on 10m² of test carpet and
- SE_{hf} = average Specific Energy Consumption on 10m² test hard floor with crevice
- in kWh
- A_c = average floor area of carpet to be cleaned (m²)
- A_{hf} = average floor area of hard floor to be cleaned (m²)
- $F_c = \begin{cases} 1 & \text{if } DP_{cr}(2) > 55 \\ 55 / DP_{cr}(2) & \text{if } DP_{cr}(2) \leq 55 \end{cases}$
- $F_{hf} = \begin{cases} 1 & \text{if } DP_{hf}(2) > 55 \\ 55 / DP_{hf}(2) & \text{if } DP_{hf}(2) \leq 55 \end{cases}$
- $P_c = \begin{cases} 1 & \text{if } PR_{cr} < 25 \text{ N (Newtons)} \end{cases}$

- $PR_{cr}/25N$ if $PR_{cr} \geq 25N$
- $P_{hf} = \begin{cases} 1 & \text{if } PR_{hf} < 25 N \text{ (Newtons)} \\ PR_{hf} / 25N & \text{if } PR_{hf} \geq 25N \end{cases}$
- 50 is the standard number of cleaning tasks per year
- t_i = annual time in idle mode 5 (h)
- P_{eff} = average effective power intake (in kW).
- $DP_{cr}(2)$ is the percentage dust removal on carpet after 2 double strokes and
- $DP_{hf}(2)$ is the percentage dust removal on hard floor after 2 double strokes
- PR_{cr} is the maximum movement resistance of the head during the carpet test
- PR_{hf} is the maximum movement resistance of the head during the carpet hard floor test

(b) The average household floor area to be cleaned is,

	Ac	Ahf
Hard floor Vacuum cleaners	0	87m ²
Carpet Vacuum cleaners	87m ²	0
All Other Vacuum cleaners	40 m ²	47m ²

(c) The average time in idle mode (t_i), in hours, is $t_i = 5$ hours

For both Carpets and hard floors (where applicable)

(d) The average Specific Energy Consumption (SE) (calculated in Wh per 10 square meter (Wh/10m²), rounded to the first decimal place as:

$$SE = 10M^2 \times P_{eff} \times 2ds \times 100x2 / (HW \times Vel \times 60x60)$$

Where

P_{eff} is the average power consumption during the test. [W]. However, if the measured P_{eff} is less than 90% of the rated power input of the vacuum cleaner, the value of 90% of the rated power input shall be declared and used in all calculations. *It shall include the average power consumption of any "battery operated active nozzle".*

Vel is 0.5M/second (the required velocity of the head in the test)

HW is the width of the relevant vacuum cleaner head in cm. (however for domestic cleaners HW shall be set at most as [30 cm], and for commercial cleaners it shall be at most [40cm])

NB the above limits implies that the normal annual cleaning time for a domestic cleaners with a 28cm head is 40 hours – compared to an average 62 hours for the study's base case.

ANNEX III

Fiche

1. The information in the product fiche of the vacuum cleaners shall be given in the order specified in points (a) to (n).
 - (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) Energy efficiency class
 - (d) average Annual Energy Consumption (AE_C) in kWh/year, rounded to the one decimal place, as defined in Annex II; it shall be described as: 'Indicative annual energy consumption 'Y' kWh per year, based on 50 cleaning tasks. Actual annual energy consumption will depend on how the appliance is used.'
 - (e) dust removal performance classes of a vacuum cleaner and individual classes and individual dust removal ability (%) on a test carpet and on a test hard floor with crevice, as defined in Annex I, table 2
 - (f) for 'hard floor' vacuum cleaners, declaration 'not suitable for use on carpets'.
for 'carpet' vacuum cleaners, declaration 'not suitable for use on hard floors'.
 - (g) Filtration efficiency and %, as defined in Annex I
 - (h) Where the vacuum cleaner has been granted an 'EU Eco-label award' under Regulation (EC) No 66/2010³ of the European Parliament and of the Council of 25 November 2009 on the EU Ecolabel, this information may be included
 - (i) Rated input power, as defined in Annex I, point 4
 - (j) Airborne acoustical noise emissions expressed in dB(A) re 1 pW and rounded to the nearest integer
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.

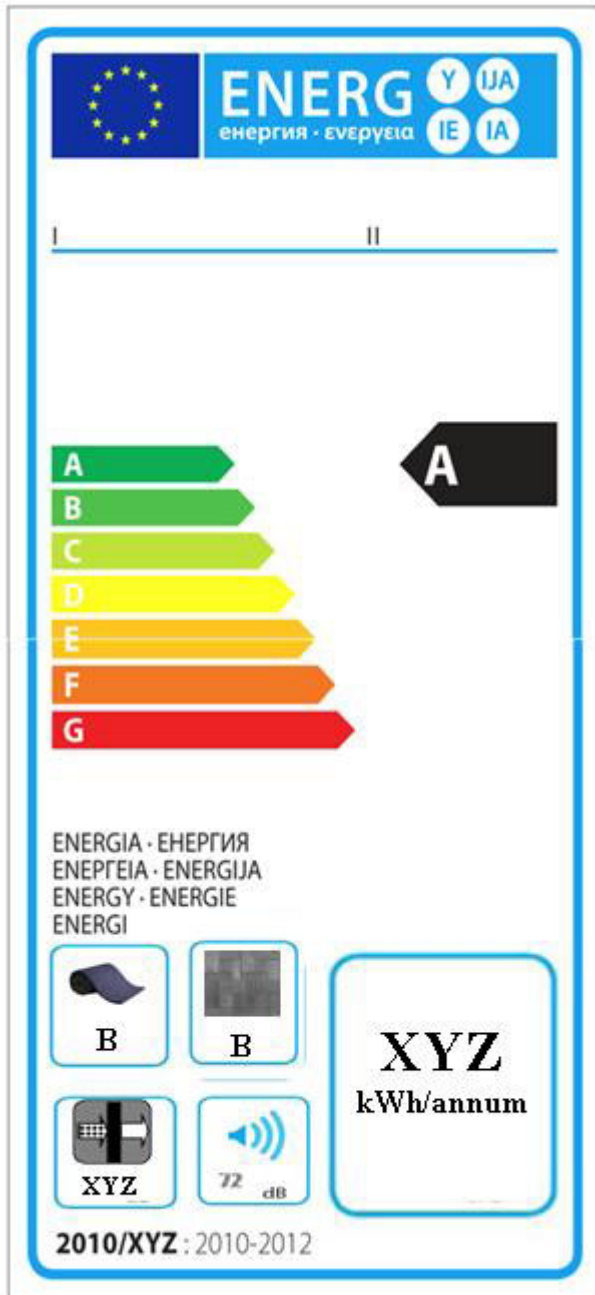
³ OJL ...

Annex IV
Technical documentation

1. The technical documentation referred to in Article 3 (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 for measurements as follows (after 2 double strokes):
 - (i) specific energy consumption on test carpet, where applicable
 - (ii) specific energy consumption on test hard floor with crevice, where applicable
 - (iii) dust removal ability from a carpet, where applicable
 - (iv) dust removal ability from a hard floor with crevice, where applicable
 - (v) fractional filtration efficiency,
 - (vi) airborne acoustical noise,
 - (g) the results of calculations performed in accordance with Annex II.
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 design, or extrapolation from other equivalent vacuum cleaner or both, the documentation shall include details of such calculations or extrapolations or both, and of tests undertaken by suppliers to verify the accuracy of the calculations undertaken. The information shall also include a list of all other equivalent vacuum cleaner models where the information was obtained on the same basis.

ANNEX V
Label

1. LABEL



- (1) 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. dust removal performance class on a test carpet as defined in Annex I;
 - V. dust removal performance class on a test hard floor with crevice, as defined in Annex I;
 - VI. fractional filtration efficiency;
 - VII average Annual Energy Consumption as defined in Annex I;
 - VII airborne acoustical noise emissions, expressed in dB (A) re 1 pW, rounded to the nearest integer.
- (2) The design of the label shall be in accordance with point 2. By way of derogation, where a model has been granted an 'EU eco-label' under Regulation (EC) No 66/2010⁴ of the European Parliament and of the Council, a copy of the EU eco-label may be added.
(Comment: Details of the size of the label will be introduced in point 2 of this Annex)

⁴ OJ L

ANNEX VI

Distance selling and other forms of selling where end-users cannot be expected to see the product displayed

1. The information referred to in Article 4(2) shall be provided in the following order:
 - (a) the energy efficiency class as defined in Annex I;
 - (b) dust removal performance class of a vacuum cleaner on a test carpet, as defined in Annex I
 - (c) dust removal performance class of a vacuum cleaner on a test hard floor with crevice, as defined in Annex I;
 - (d) the average Annual Energy Consumption (AE_C) in accordance with Annex II
 - (e) Fractional filtration efficiency
 - (f) Rated input power, as defined in Annex I, point 4
 - (h) airborne acoustical noise emissions expressed in dB(A) re 1 pW and rounded to the nearest integer;
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 all the information referred in this Annex is printed or shown, shall be legible (minimum height 3 mm).

ANNEX VII

Verification procedure for market surveillance purposes

For the purposes of checking conformity with the requirements laid down in Articles 3 and 4, Member State authorities shall test a single vacuum cleaner. If the measured parameters do not meet the values declared by the supplier within the ranges set out in Table 1, the measurements shall be carried out on three more vacuum cleaners. The arithmetic mean of the measured values of these three vacuum cleaners shall meet the values declared by the supplier within the range defined in Table 1.

Otherwise, the model and all other equivalent vacuum cleaner models shall be considered not to comply with the requirements laid down in Articles 3 and 4.

Member States authorities shall use reliable, accurate and reproducible measurement procedures, which take into account the generally recognised state of the art measurement methods, including methods set out in documents the reference numbers of which have been published for that purpose in the Official Journal of the European Union.

Table 1

Measured parameter	Verification tolerances
average Annual Energy Consumption	The measured value shall not be greater than the rated value* by more than [10] %.
average effective power intake	The measured value shall not be less than the rated value of P_{eff} by more than [4] %. It shall also be no less than [94] % of the rated input power.
Head width	The measured value shall not be greater than the rated value. (0%)
dust removal ability from a carpet	The measured value shall not be less than the rated value of D_c by more than [3] % of the weight of test dust placed on the carpet.
dust removal ability from a hard floor with crevice	The measured value shall not be less than the rated value of D_{hf} by more than [3] % of the weight of test dust in the swept part of the crevice.
Dust re-emission	The measured value shall not be greater than 115% of the rated value.

* “rated value” means a value that is declared by the manufacturer