

EXPLANATORY MEMORANDUM

Accompanying draft working documents for the review of the ecodesign regulation for vacuum cleaners and the re-introduction of an energy labelling regulation for vacuum cleaners

This draft and the two legal draft acts for ecodesign and energy labelling for vacuum cleaners have not been adopted or endorsed by the European Commission. Any views expressed are the preliminary views of the Commission services and may not in any circumstances be regarded as stating an official position of the Commission.

Following the latest developments in standardisation, legislation and policy goals, updated proposals for ecodesign and energy labelling rules for vacuum cleaners are presented for discussion after the last Consultation Forum held on the topic on 31 March 2022. The proposals aim to introduce test standards closer to user practice, alignment with the latest legislation on batteries and repairability as well as higher ambition in energy and carbon savings.

Test standards closer to user practice

The CEN and IEC standardisation working groups have been working to make the testing of energy efficiency and performance of vacuum cleaners more realistic as well as keeping it reproducible and accurate (repeatable). There have been round robin tests (RTT) on reproducibility and repeatability of the tests, finding them acceptable within certain verification standards. Members of industry associations for both household and commercial vacuum cleaners have performed and shared tests on an extensive population of models, both mains-operated and battery-operated, both with the old and new standards. Consumer associations have shared their expertise on the matter.

According to the latest developments in the (draft) standards, tests are to be performed:

- at three double strokes (and not anymore at five double strokes plus correction), at equal number of test runs starting with forward and backward strokes¹;
- not only to test the dust removal performance but also the debris removal performance, both on carpet and on hard floor, in order to distinguish between household and commercial debris²³;
- at partially loaded receptacle (that means: at 100 g test dust/litre of maximum usable volume mov of the receptacle) instead of at empty receptacle;
- with a limit for the motion resistance during testing close to reality (40 N);
- with a universal nozzle for all types of dirt and floor types;
- with an absolute limit for maximum motor power (not allowing for boost modes).

¹ Recently, the IEC standardisation groups have agreed – based on their own tests — to use three double strokes instead of five double strokes; there is thus coherence between the EU CEN and the global IEC standard.

² As regards the test-floor types, tests showed that a larger differentiation would not bring more realism to the testing.

³ The current batch of Wilton test carpets ('BIC 5') is almost finished and a new batch ('BIC 6') is up for a round robin tests to clarify that tolerances do not deviate too much from the current batch. We will follow that closely and adapt the drafts accordingly.

These changes represent a step change in the vacuum cleaner testing, not only at EU level (CEN) but also at global (IEC) level. Nonetheless, the results of the new tests are relatively close to the results obtained with the tests in use. For instance, carpet dust pick up (dpu_c) currently has an ecodesign limit of 75%-points in today's tests and with the new testing practice, EUnited cleaning (the European association for commercial vacuum cleaners) found that:

- a) the outcome with a partially loaded receptacle instead of an empty receptacle shows an average loss of only 1.4% points dpu_c ;
- b) moving from five double strokes to three double strokes gives an average loss in dpu_c of 5.6%;
- c) limiting the motion resistance to max. 40 N gives an average loss in dpu_c of 1.2%.

The first point is also confirmed in 2022 tests by the German consumer association Stiftung Warentest that found dpu_c values to be 1.6-1.8% lower with part-load versus empty receptacles. Overall, to accommodate the largest part of these changes, the minimum dpu_c performance could be reduced from 75% to 70%, as the draft ecodesign act presents. For hard-floor dust pick-up the current 95% limit can easily stay also with the new test methods.

Tests show lower performance for the debris pick-up than for the dust pick-up: with a newly proposed test for pick-up of larger particles in households (emulated by plastic objects) or heavier particles in commercial environments (emulated by brass objects), the performance on carpets is about 55% (i.e. around 15%-points worse than with dust). For hard-floor, where the small objects tend to be pushed round by a nozzle rather than taken in by the nozzle, the debris pick-up is in the order of 60%.

Alignment with the latest legislation on batteries, repairability and standby power

The ecodesign draft act takes into account the provisions and definitions set in:

- 1) Regulation (EU) 2023/1542 concerning batteries and waste batteries, setting environmental rules for the battery life cycle stages;
- 2) Regulation (EU) 2023/1670 laying down unique practical ecodesign requirements for rechargeable batteries in cell phones and tablets;
- 3) Regulation (EU) 2023/826 laying down ecodesign requirements for off mode, standby mode and networked standby energy consumption of electrical and electronic household and office equipment; and
- 4) The French repairability legislation for –amongst others—vacuum cleaners, setting an example for a new resource efficiency approach in the EU-wide market.

Higher ambition in energy and GHG savings and reparability

- 1) The scope is enlarged, with not only mains-operated but also the fast growing on the market battery-operated dry vacuum cleaners for households. The mains-operated products now have a more differentiated approach between household and commercial use to increase effectiveness. The low-power mode of robot dry vacuum cleaners may be in scope if a maintenance power requirement is set (see below in the points for discussion).
- 2) For mains-operated vacuum cleaners the maximum operational power is proposed to be maximum 750 W (instead of 900 W) and the annual energy consumption less than

or equal to 36 kWh/year instead of 43.5 kWh/year. For the newly proposed in scope battery-operated vacuum cleaners the proposed values are 500 W and 24 kWh/year.

- 3) As for resource efficiency, a reparability index is proposed⁴ for inclusion in a new EU energy label alongside other key supplementary information⁵ – see below.

POINTS FOR DISCUSSION

I. Ecodesign

It is proposed to discuss the proposed ecodesign draft act article by article, including the questions in footnotes. Items for discussion include:

- the proposed values for the maximum annual energy consumption and operational power for mains-operated vacuum and battery-operated vacuum cleaners;
- using test standards derived from the ecodesign regulation for phones and tablets – for energy consumption (based on three power assessments), the capacity, endurance and runtime assessment of battery-operated vacuum cleaners, including the limit for the minimum number of cycles for endurance: what values to use? 700 or 800 cycles? and the capacity-limit at 70% or 80%?;
- the definition of the exempted ‘dry and wet vacuum cleaners’, with its mentioning a limit of 2,5 litres in view of possible circumvention;
- the proposed draft reparability index.

II. Energy Label

The stakeholders in the Consultation Forum are asked for their opinion on the proposed reintroduction of the EU Energy label⁶.

The proposed energy label does not include the performance tests of the vacuum cleaner.

⁴ The proposal takes into account the APPLiA proposal, that is based on the French index to have the disassembly depth only derived from the number of steps. The consumer association ANEC advocates (also) the time per step (‘PROMPT’ approach).

⁵ Energy labels could increase the effectiveness of energy saving choices but also resource efficiency and consumer empowerment by presenting a reparability index, noise, receptacle volume, improved market surveillance through EPREL, easy QR code access, battery runtime, etc.

⁶ In reply to the EU Have your say open consultation run in 2022, 83% of respondents answered that there should be a EU energy label for vacuum cleaners.

Table 1
Energy classes

Energy Class	Energy efficiency index 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)	$EEI > 92$

The energy label would show the power intake (in kWh/a) and only the minimum indispensable icons. The energy label tests and information sheet follow those of the ecodesign proposal.

A first example of lay-out is given hereafter:

Household VC, mains operated

- 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;
- VI Repairability class, determined in accordance with Annex II, IV;
- VII Maximum Useful Volume of the receptacle in litres;
- VIII Sound power in dB(A);
- IX Power intake in kWh/a;
- X General purpose: carpet & hard floor (*icon changes for 'carpet only' or 'hard floor only' vacuum cleaners*)

Household VC, battery operated

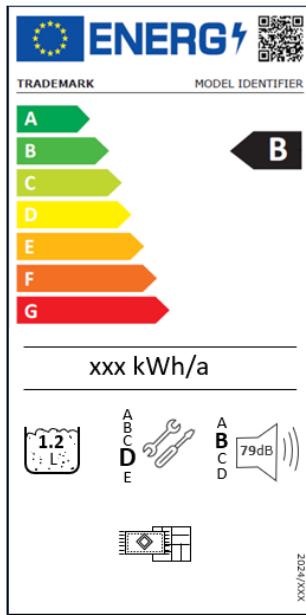
- XI Battery runtime (fully charged) in minutes

Commercial VC (mains-operated only)

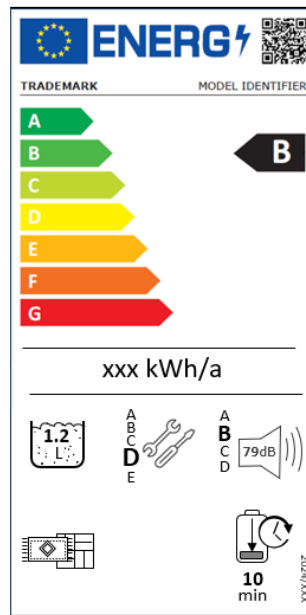
- XII Hoovering speed in m²/minute and scale A-E

• Label size **135 x 69 mm**
(old label 150 x 75 mm = 20% larger)

Household VC, mains operated



Household VC, battery operated



Commercial VC (only mains operated)

