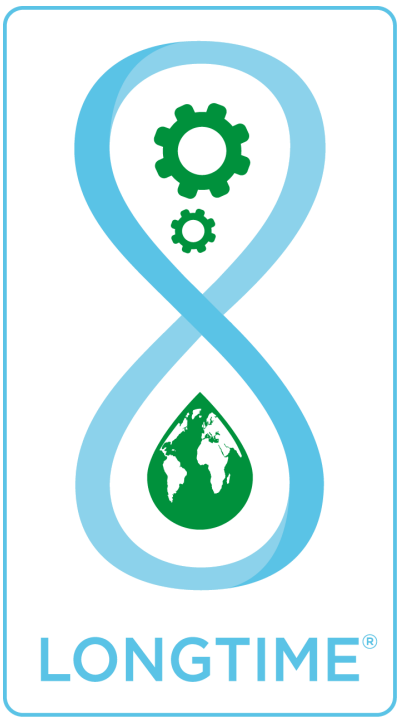

Certification PSR

Cordless Vacuum Cleaner

Summary

10. Usage Information Format
11. Prolonged immobilization

Repairability

12. Disassembly of parts
13. Fixings and connectors of parts
14. Tools
15. Work environment
16. Skill Level
17. Spare parts interface
18. Availability time for spare parts
19. Accessibility of spare parts to target audiences
20. Terms of sale of spare parts
21. Price of spare parts
22. Shipping costs for spare parts
23. Delivery time for spare parts
24. Failure scenario documentation
25. Support for fault diagnosis
26. Resetting settings and passwords
27. Software
28. Internal failure resolution policy
29. After-sales service contact
30. Return Services
31. Condition of restitution
32. Product of great utility
33. Warranty time
34. Exclusion of warranty

Life cycle

35. Protection of health, safety and environment
36. Energy and/or environmental performance
37. End of life management of equipment
38. Packaging management

VIII. TERMS AND DEFINITIONS

IX. CALCULATION OF ANNUAL ENERGY CONSUMPTION

X. BIBLIOGRAPHICAL RESOURCES

XI. VERSION UPDATE

XII. THANKS

I. GENERAL

Vision of LONGTIME®

This project is part of a dynamic of societal movement with the desire to move ahead of regulations. This label is made by citizens, for citizens. It provides certainty that the product bearing the label is manufactured for long-term use, as desired by the majority of consumers, and that it is economically repairable.
LONGTIME® is a simple, strong and effective tool, created to inform consumers concerned about the overall impact of their purchases, but also consumers wishing to acquire a product with a fair longevity/price ratio. It also tends to bring to the forefront manufacturers keen to offer products with an optimized lifespan.

Objectives of the label

This approach involves encouraging different consumption, therefore aiming to produce differently. Almost all citizens want a transformation of the consumer society with a real change in the technical-economic paradigm in order to consume better and more sustainably.
As studies show " Modeling and environmental assessment of consumer products and capital goods " And " Environmental and economic assessment of the extension of the duration of use of electrical and electronic equipment at the household level » from the French Environment and Energy Management Agency (ADEME),
the ecological interest is major, on a global scale we have increased our consumption of raw materials in just a few decades to now exceed 60 billion tonnes per year.
The label influences the preservation of planetary resources, through better use of them and the reduction of waste.
Intuitively, therefore, obtaining a good with an optimized lifespan promotes reasoned use of our planet's resources, reduces over-consumption and allows us to move away from disposable items and waste. It is not a question of looking for “immortal” products but of fighting against the too short lifespan of products.

Impact of durability of cordless vacuum

For this product category, the following functional unit will be used: “To ensure the weekly cleaning of the floors in an 85 m² dwelling occupied by a household of 2.3 people, over a period of 8 years.”
Stick vacuum cleaners are often classified among appliances with a low electronic component. However, this categorisation warrants a more nuanced view. Indeed, many recent models incorporate lithium-ion batteries, battery management systems (BMS), power control boards, as well as digital interfaces or smart sensors, which bring them, from a technical standpoint, closer to equipment with intermediate to high electronic content.
From a life cycle perspective, the manufacturing phase – raw material extraction, component production and assembly – remains the greatest contributor to environmental impact, particularly regarding climate change, resource depletion and air pollution indicators. The SuperBOM analysis highlights a predominance of petrochemical-derived plastics, metal alloys, and printed circuit boards. The ecological backpack (MIPS) reveals a high

impact-to-mass ratio, with estimated values between 100 and 300 times the product's mass, by analogy with similarly complex equipment studied in ADEME reports.
The use phase, though less dominant in the context of the French electricity mix, becomes more significant in countries with a carbon-intensive energy mix. Nevertheless, energy consumption remains moderate, as most models are designed for short and optimised operating cycles.
Extending the usage duration helps reduce the impact indicators associated with upstream life cycle phases (extraction, manufacturing, assembly). However, for certain indicators sensitive to energy consumption, the net environmental benefit will depend on the energy efficiency of the product being replaced. For stick vacuum cleaners, which are not currently covered by regulatory energy labelling, the average annual efficiency improvement is estimated at around 1.5%. Thus, in specific cases, replacing a very old appliance with a more efficient model may partially offset the impacts related to manufacturing. This observation, however, must be nuanced depending on the geographical context (electricity mix) and the actual efficiency gap between product generations.
At end of life, the main challenges concern battery collection and recycling – still underperforming – as well as the management of technical plastics. The inclusion of electronic components also increases the complexity of repair and disassembly.
Therefore, extending the lifespan of a stick vacuum cleaner – through improved maintainability, availability of spare parts (notably batteries and filters), or motor repairability – enables a reduction of environmental impacts by approximately 25 to 30% per unit of service rendered, by spreading manufacturing-related impacts over a longer period of use.

Fields of application

The label is applicable to different product families as long as there is an assembly of parts. LONGTIME® tends to cover domestic, electronic, portable power appliances, furniture, leisure equipment, professional equipment, etc. The range of products is therefore very vast but excludes automobiles, textile products (excluding leather goods), food, cosmetics and chemicals.

Organization of the repository

The criteria are broken down into 3 main families and grouped into 9 categories. The presentation of the criteria follows the following diagram:

Criteria category

The criteria are grouped into 3 main categories

Criteria subcategory

Each of the 3 main criterion categories has sub-categories that allow us to refine the field. The reference system comprises a total of 9 sub-categories

1. Criteria number and name

   Each criterion is identified by a number and a name corresponding to its specific theme. In all, there are 38 criteria.

Time marker

Associated with each criterion Cf table below

CROSS-CUTTING CRITERIA
Criterion applicable to all product categories

- Product Specific Requirement (PSR)

Specific criterion whose scope is adapted to the product category of the standard.

Means of proof: Details of the means of proof required and/or relevant to the assessment of the criterion and its PSR.

A time marker is assigned to each criterion of the label according to the classification indicated in the table below:

Criteria **TO**	These criteria must be respected to qualify for labeling after the initial audit (year N).
Criteria **T1**	These criteria must be respected at least 50% during the audit. They will lead to the implementation of corrective actions to reach 100% by year N+1.

Control system

The assessment of compliance with the benchmark criteria is carried out by an approved and independent inspection body.
Each criterion is assessed using a compliant/non-compliant approach.
More details on the control system in the labeling process available at the link: https://www.longtimelabel.com/conditionslongtime

Standards and regulations

The standards or regulations cited in the reference system use the most recent versions and/or equivalences published in the official journal of the European Union.

General modes of proof

- Visual inspection by third party auditor mandated during the on-site audit

A series of documents and administrative procedures are useful to establish evidence of compliance with different criteria:

- Technical specifications referred to in Article 12, paragraph 5 of the REGULATION (EU) 2017/1369 present in the European Commission Database relating to product conformity (CE marking database)
- Technical specifications of components, materials, coatings and internal or supplier processes
- Quality certification and type 1 or 2 label (Iso 9001, Iso 14001)
- Quality assurance
- Test data

- After-sales data
- Any documentary/software element to support compliance such as:
  - Internal product data sheet
  - Functional analysis tool
  - Design study (operation, materials, usage constraints)
  - Performances et tests d’endurance
  - Phase and qualifying test
  - Study of breakdown rates
  - Notice d’utilisation
  - Maintenance instructions
- Terms of Sales

II. FRAMEWORK OF THE PRODUCT SCOPE

The stick vacuum cleaner repository is dedicated to portable household cleaning devices, designed for vacuuming dirt, dust and debris on various types of floor surfaces (parquet floors, rugs, carpets, tiles, etc.). These devices use a power supply, supplied by a battery integrated rechargeable, allowing autonomous use.

Stick vacuum cleaners convert electrical energy into suction power via an electric motor, which creates a vacuum to capture dust particles and store them in a compact, lightweight tank. They are equipped with filters to capture fine particles and various accessories and brushes, suitable for cleaning different types of surfaces and reaching hard-to-reach areas.

They are mainly used for cleaning floors in residential buildings, and in some cases, commercial. The present sector reference is dedicated only to the products indicated in the perimeter below:

Product scope

- Handheld domestic cordless vacuum cleaner
- Electric portable domestic cordless vacuum cleaner convertible into a handheld vacuum cleaner

Outside the product scope

- Vacuum cleaner mop
- Corded vacuum cleaner
- Robot vacuum
- Centralized vacuum cleaner
- Handheld vacuum only (without broom function)
- Industrial or commercial vacuum cleaner
- Wet and dry vacuum cleaner (non-autonomous)

In the rest of the repository, **“Electric portable domestic cordless vacuum cleaner”** is replaced by **“cordless vacuum cleaner”**.

III. NOMENCLATURE OF PARTS

This chapter details a standard nomenclature, representative of the target product group but not exhaustive. The different parts present in the nomenclature will then be hierarchized by type of part.

- **Top handle assembly**
  - Power switch
  - Handle Upper Half Housing
  - Handle Lower half-case
  - Analog or digital display (display)
  - Control button, (tactile, mechanical)
  - Program selector, switch
  - Status indicator

- **Electrical and electronic assembly**
  - Filter or suppression module
  - Electronic control card or module
  - Electronic display card or module
  - Module IOT
  - Thermal protection device (circuit breaker, thermal or amperometric fuse, overcurrent, electromechanical safety)
  - Temperature probe (type CTN)

- **Electro-brush set**
  - Rear casters (L/R) and wheel axles
  - Front casters (L/R) and wheel axles
  - Brush roller
  - Scraper seal
  - Electro-brush upper half-case
  - Electro-brush lower half-case
  - Electro-brush internal shell
  - Electro-brush motor
  - Direct brush drive system
  - Indirect brush drive system
  - Electric brush motor power card or module
  - Bellows Articulation
  - Motor harness / brush-tube contactor

- **Engine block assembly**
  - Dust separator bowl
  - Engine inlet filtration system (micro-filter, disposable foam pre-filter, sock filter)
  - Left engine crankcase
  - Right engine crankcase
  - ON/OFF slider button
  - Dust separator bowl unlocking system
  - Engine compartment (handle flange)
  - Motor-turbine block & power harness

- Motor-turbine block protection cover
- Power board
- Engine board wiring harness
- Motor coal
- Thermofusible
- Motor block electric contactor (hand vacuum cleaner)
- Engine outlet filtration system

- **Drum Set**
  - Cell matrix
  - Carte BMS
  - Mains block
  - Charging station

- **Suction body assembly**
  - Upper half-shell suction body
  - Lower half-shell suction body
  - Engine assembly locking system
  - Electric contactor suction body
  - Charging device (charging port, etc.)
  - Downstream filtration system

- **Sealing and stabilization assembly of mechanical connections**
  - Sealing mechanism (O-ring, ring, lips, silicone, etc.)
  - Holding mechanism (screws, bolts, circlips, washers, etc.)
  - Stabilization mechanism (spring, spacer, bucket, bearing, etc.)
  - Translation mechanism (slides)

IV. HIERARCHIZATION BY CATEGORY OF PARTIES

Product casing

Brings together all the product covering parts such as covers to protect the internal components from the outside.

- **Electro-brush set**
  - Electro-brush upper half-case
  - Electro-brush lower half-case
- **Engine block assembly**
  - Left engine crankcase
  - Right engine crankcase
- **Suction body assembly**
  - Upper half-shell suction body
  - Lower half-shell suction body

Functional parts

Parts related to the operation or use of the product without additional features.

- **Top handle assembly**
  - Power switch
  - Handle Upper Half Housing
  - Analog or digital display (display)
  - Control button, (tactile, mechanical)
  - Program selector, switch
  - Status indicator
- **Electro-brush set**
  - Rear casters (L/R) and wheel axles
  - Front casters (L/R) and wheel axles
  - Electro-brush internal shell
- **Engine block assembly**
  - ON/OFF slider button
  - Dust separator bowl unlocking system
  - Engine compartment (handle flange)
  - Motor-turbine block protection cover
  - Engine board wiring harness
  - Motor coal
  - Motor block electric contactor (hand vacuum cleaner)
- **Drum Set**
  - Charging station

- Mains block

- **Suction body assembly**
  - Engine assembly locking system
  - Electric contactor suction body

- **Sealing and stabilization assembly of mechanical connections**
  - Holding mechanism (screws, bolts, circlips, washers, etc.)
  - Stabilization mechanism (spring, spacer, bucket, bearing, etc.)
  - Translation mechanism (slides)

Priority parts

Functional parts but characterized by proven criticality in the event of a malfunction or breakdown (sometimes called critical parts).

- **Electrical and electronic assembly**
  - Filter or suppression module
  - Electronic control card or module
  - Electronic display card or module
  - Module IOT
  - Thermal protection device (circuit breaker, thermal or amperometric fuse, overcurrent, electromechanical safety)
  - Temperature probe (type CTN)

- **Electro-brush set**
  - Electro-brush motor
  - Direct brush drive system
  - Indirect brush drive system
  - Electric brush motor power card or module
  - Bellows Articulation
  - Motor harness / brush-tube contactor

- **Engine block assembly**
  - Motor-turbine block & power harness
  - Moto Turbine power electronic card or module
  - Thermofusible

- **Drum Set**
  - Cell matrix
  - Carte BMS

- **Suction body assembly**
  - Charging device (charging port, etc.)

- **Sealing and stabilization assembly of mechanical connections**
  - Sealing mechanism (O-ring, ring, lips, silicone, etc.)

Vulnerable parts

Parts exposed to a high accidental user breakage rate.

- **Top handle assembly**
  - Handle Lower half-case
- **Engine block assembly**
  - Dust separator bowl

Consumable or maintenance parts

Consumable parts group together the parts destined to be replaced more or less frequently depending on the degradation model over the total lifespan of the product. Maintenance parts require maintenance at regular intervals to keep the product in optimal operating condition.

- **Electro-brush set**
  - Brush roller
  - Scraper seal
- **Suction body assembly**
  - Exhausted air filtration system
- **Engine block assembly**
  - Engine inlet filtration system (micro-filter, disposable foam pre-filter, sock filter)
  - Engine outlet filtration system

Aesthetic parts or accessories

Aesthetic parts that do not hinder the operation of the product. Elements that can be useful for the operation of an object or to add additional functions without being part of it.

- **Accessory parts**
  - Not identified according to the definition of the LONGTIME® standard

V. REPAIRABILITY CRITERIA CLASS

1. Class system

The criteria present in the “Repairability” family uses a class system to prioritize the level of requirements for each type of part.
These classes can range from A to E.
Class A represents best repairability practices. The lower classes (B, C, up to D or E) demonstrate a decreasing level of relevance of practices but must always be studied in relation to market practices.

The definition of classes is the subject of a study for each framework in order to identify best market practices.

2. Depth of disassembly of parts

The count of disassembly steps starts when the vacuum cleaner is disconnected from the electrical network. A step is an operation leading to the removal of a part or a tool change.

VI. EXPOSURE TO EXOGENOUS FAILURES

Definition

Exogenous failure refers to a defect or problem in the manufactured product that occurs due to external factors or conditions beyond the control of the manufacturer or producer.
As opposed to an endogenous failure which is linked to internal problems (design, manufacturing, quality), an exogenous failure is generally the result of external circumstances that are not predictable (e.g. extreme environmental conditions, transport accidents, inappropriate handling on the part of the end user, component failures from third-party suppliers, etc.).
Managing exogenous failures in product manufacturing may involve implementing quality control measures, rigorous testing, supply chain management, warranties and return policies to deal with problems that may arise. arise due to these external factors.

Exogenous failure criteria

Importance of the phase: Indicator used to assess the role of a specific phase according to its recurrence or time in relation to the other phases.

- Weighting at 1: Time or occurrence of the phase in which the product is located in relation to the other phases between 0% and 30%.
- Weighting 2: Time or occurrence of the phase in which the product is found in relation to the other phases between 30% and 60%.
- Weighting at 3: Time or occurrence of the phase in which the product is found in relation to the other phases greater than 60%.

User risk :

Reflects the ability to respect the conditions of use in the face of the weight of the constraints of use.
Related levels:

- Low : the user scrupulously respects the rules for using the product, particularly for reasons of quality and safety
- Medium : the user generally respects the rules for using the product
- High : the user may not respect the rules for using the product due to a difficult context of use, a search for efficiency or to save time

Product handling :

Reflects the possibility of mishandling, shocks, falls.
Related levels:

- Low : Not manipulated
- Medium : Handling without moving or dismantling
- High : Handling with movement or disassembly

Weather exposure :

Refers to exposure to rain, hail, frost, wind, sand, lightning, dust, salt spray...

Associated levels :

- Low : No exposure (indoors)
- Medium : Indirect exposure (hold, station concourse)
- High : Direct exposure (outdoors)

Definition of the different phases

- **Inactivity:** The appliance has power but is not performing any active tasks. It is in a state where it is not being used for specific functions and is not executing background operations.
- **Standby:** The equipment is in a low-power state, with main components reduced to a minimum, but capable of maintaining certain functions or responding to interactions.
- **Specific phase:** To be defined according to each product family. There may be several different specific phases.
- **Activity:** The equipment is operational, performing tasks, and consumes a quantity of energy as a result of its active operation. This is the phase when the device is most in demand and uses all its available functions to meet the user's needs.
- **Cleaning/Maintenance/Servicing:** This phase involves regular servicing of the appliance to optimize its performance and ensure that it runs efficiently over the long term. It includes tasks related to physical and software maintenance, aimed at preventing problems and improving the lifespan of the equipment.
- **Storage:** This phase corresponds to the period during which the equipment is not actively used and is placed in a storage environment for an extended period.

Phase	User risk	Product handling	Exposure to bad weather	Overall risk
Storage Inactivity	Medium	Low	Low	Low
Loading	Medium	Low	Low	Low
Aspiration	Medium	High	Low	Medium
Tank emptying	Low	High	Low	Medium
Cleaning, maintenance	High	High	Low	Medium

Assessment of the overall risk of exogenous failure: Medium

The main risks of exogenous failures for stick vacuum cleaners mainly result in:

- Storage phase, inactivity
  - Risk of deep discharge in the event of non-compliance with battery charge cycle instructions
- Loading phase

- Bad respect instructions for use and in particular safety conditions using a transformer not adapted to the electrical characteristics of the product
- Improper parking of the product with increased risk of falling

- Phase Aspiration
  - Suction of particles or unforeseen fluid (plaster dust, water, etc.) having the effect of clogging or altering the filters or even severely damaging the engine
  - Suction of particles that are too large leading to a significant drop in performance or a risk of blocking the electrobrush
  - Inadvertent shocks either in furniture and walls or by dropping the product

- Tank emptying phase
  - Risk of the tank falling when emptying or cracking when extracting particle residue
  - Risk of loss of seal

- Cleaning, maintenance phase
  - Poor compliance with filter maintenance conditions with risk of loss of suction or motor clogging
  - Risk of deterioration of filters by using non-recommended cleaning methods
  - Risk of loss joint or reassembly error

VII. LABEL CRITERIA

Reliability

Conception

1. Resistance to stress

Criterion T0

The producer identifies the functions of the product and its parts as well as the associated critical usage constraints. It demonstrates sustainable design choices, optimized by reliability and/or repairability strategies.

General mode of proof supplemented by a set of data appropriate to the sub-criteria including the application of testing standards relating to the product:

- *EN 60335-1 COMPIL 15 Household and similar electrical appliances - Safety - Part 1: General requirements*
- *EN 60312-1 Vacuum cleaners for household use - Part 1: Vacuum cleaners - Methods of measurement of performance*
- *EN 62308 Reliability of equipment - Methods for assessing reliability*
- *EN 45552: General method for assessing the durability of energy-related products*

❖ Resistance to mechanical stress

- Resistance of materials and parts to impacts
  - Selection of materials with mechanical properties resistant to drops and impacts, particularly for the dust separator bowl and battery pack with an IK07 protection rating
  - Resistance of passive brush materials to 1,200 drops from a height of 80 cm without damage
  - For the electrobrush, technical solution or dimensioning of materials to withstand repeated but small impacts
  - The appliance must withstand threshold and door jamb impact tests of at least 500 cycles.

Mood of proof:

- *Drop test report representative of use and conclusive in standardised tests to prove the robustness of the tank and battery:*
  - *EN 62262*
  - *EN 60068-2-31 Shock related to rough handling*
  - *IZOD or Charpy impact resistance tests*
- *Test compliance and test report for motor life in accordance with the requirement of Annex 1 of standard EN 60312-1*

- Wear resistance of turbine motor and electrical brush motor :
  - Brushless turbine motor only
  - At least one of the 4 conditions below is met:

- Electric motor with minimum 400h trouble-free operation for turbine, and minimum 300h for electrical brush with a representative aeraulic load (dust container filled to 50% of its nominal usable volume)
- Minimum 7-year warranty on the turbine motor or the entire product
- Repair package including a motor replacement at a price < 30% of the product price
- The turbine motor is removable and sold as a single spare part, not within a sub-set.

- Whatever the above conditions, the motors must withstand at least 200 hours of operation.

Mood of proof:

- *Relays and contactors certified for 200,000 cycles minimum on the characteristics of the electrical network of destination*
- *Temperature limiter certified for 20,000 cycles at 256 Vac/10A and 10,000 cycles at 256 Vac/16A*
- *ENAC type certification certificate*
- *Motor wear and ageing tests in accordance with EN 60312-1 or IEC 62885-2*
- *Commitment to quality through extended warranty of more than 5 years.*

- Wear resistance of parts subjected to repeated movements and robustness of control modules:
  - Power button with a contact closure cycle resistance ≥225 000 cycles
  - Puissance button with a contact closure cycle resistance ≥100 000 cycles
- Robustness of the connections between the electro-mechanical parts
  - The charging connector has a insertion/extraction cycle resistance ≥12 000 cycles
  - Robust electro-brush and suction tube connector

OR : electro-brush and suction tube connector, buttons and external connectors are sold individually and not as sub-assemblies. (see 24. Terms and conditions for the sale of spare parts)

Mood of proof:

- *ASTM-F1778-07 or Accelerated wear or life test*
- *For charging connector Insertion/extraction cycle resistance EN ISO 62680-1-3/EIA-364-09D*

- Bending resistance
  - Robustness of the electro brush and suction tube connection with a minimum of 40,000 bending without degradation

Mood of proof:

- *Characterisation of parts and processes using technical data*
- *Wear and ageing test of the hose under stress applied using a 2.5 kilogram weight.*
- *Manufacturer's commitment with a minimum 5-year warranty.*

❖ Resistance to thermal stress

- Resistance to overheating
  - Preservation of heat-sensitive components (triac and capacitor) thanks to effective thermal architecture and/or temperature management and dissipation solutions
    - Thermal decoupling and/or preventive shutdown
    - Use of heat sinks
    - And/or use of a natural or motorized fan cooling system
  - Thermal sensors to maintain product integrity in the event of a sudden rise in temperature
  - Preventive or amperometric thermal protection for electric motors (electro brush and motor turbine)
  - Thermal protection of the rotor using fuses, thermal-magnetic circuit breakers and/or overload relays
  - Battery preservation in the event of intensive use via BMS and power management

Mood of proof:

- *Characterisation of parts and processes using technical data, wear and ageing tests or ASAH-type accelerated life tests*
- *Boundary condition tests (continuous operating time, electronic input characteristics such as voltage range)*
- *Manufacturer's commitment with a minimum 5-year warranty*

❖ Resistance to electrical stress

- Resistance to electrical surges and mains variations
  - EOS protection circuit or overvoltage fuse
  - Protection of electrical and electronic components against the risk of electrostatic discharge
- Battery retaining 75% of its charge capacity at 600 cycles.

Mood of proof:

- *Electrostatic discharge resistance test type IEC-61000-4-2*
- *IEC 61960-3 Lithium secondary cells and batteries for portable applications and IEC 62885-4 Floor cleaning appliances - Part 4: Cordless dry hoovers for household and similar purposes - Methods of measurement of performance*
- *Manufacturer's commitment with a minimum 5-year warranty*

❖ Resistance to attacks

- Resistance from components to conditions of use and more particularly dust
  - Sealing of electrical and electronic contacts ensured by product design or by design elements compatible with the objectives of promoting repairability
  - Important and effective protection of the motor turbine from the risks of clogging

Mood of proof:

- *IP6X intrusion resistance test in accordance with standard EN 60529 or equivalent standardised tests*
- *Quality certification of motor-turbine seal(s) and/or boundary conditions tests, wear and ageing tests or accelerated service life type ASAH*

Production

2. Production line

Criterion T0

The producer justifies processes allowing him to control and maintain a consistently high quality of manufacturing and assembly in the production phase.

- The main site(s) involved in the production of the product have(have) certification linked to an international management and quality management standard.
  - Site involved in the manufacturing of ISO 9001 electronic cards
  - Site involved in the manufacturing of ISO 9001 electric motors
  - Site involved in the manufacturing of the ISO 9001 battery

Mood of proof:

- *Annual quality control of the production site and its production chain by at least a third party.*
- *Demonstration of compliance with the principles of ISO 9001 by verification of quality procedures or by equivalence in other certifications.*
- *For companies with more than 250 employees and for subsystems identified in PSR (in the case of subcontracting), ISO 9001 certification delivered by an accredited third-party control body.*

3. Logistics

Criterion T0

The producer reduces risks to the reliability of components and assemblies through effective quality processes for managing supply conditions, packaging, storage, handling and transport.

- Inventory control and management
  - The condition of products in stock and processable materials is regularly monitored, with dedicated processes to check and estimate unloading time, the date of manufacture and mode of transport (unique identifier).
  - Periodic inventories are carried out, and in the event of non-compliance, a reminder is systematically sent out. The conformity of items and materials in stock is clearly identified, and non-compliant products are placed in dedicated areas.
  - Storage conditions for articles and materials are measured and controlled continuously or periodically, with specifications and control limits validated by an independent authority.

- Handling and transport procedures
  - Specific handling procedures are defined and controlled to avoid any deterioration of the product during delivery, handling and transport.
  - Handling, storage, packaging and preservation conditions are codified, including considerations of shelf life, sensitivity to stress, and product hazard.

- Product traceability and protection

- Exhaustive traceability makes it possible to identify and know the history of the product, including the components and documentation associated with its life cycle.
- Genuine conformity checks on finished products are carried out before they are put into storage, and are formally described and validated by an independent authority.

❖ The environment of the storage areas is controlled and specifically adapted to the components and materials of the upright vacuum cleaners and more particularly:
- electronic card(s)
- battery

General modes of proof

❖ In order to avoid any deterioration of the product during mobilization (delivery, handling, transport), specific procedures for handling vacuum cleaners are defined and controlled.

Specific Mood of proof: ISTA series 3 type packaging test

4. Supply chain

Criterion T0

Within its value chain, the producer details the performance of its quality management linked to the reliability of the goods or services of its suppliers in direct connection with its manufacturing phases.

❖ Particular attention will be paid to the following elements:
- Triac (third-party quality certification required)
- Capacitor (third-party quality certification required)
- Electric motor (third-party quality certification required)
- Electronic card (third-party quality certification required)
- Battery (third-party quality certification required)

❖ For companies with more than 250 employees and for subsystems identified in PSR (in the case of subcontracting), ISO 9001 certification issued by an accredited third-party inspection body.

Specific methods of proof:
- *Annual quality control of the production site and its production line by at least a third party.*
- *Demonstration of compliance with the principles of ISO 9001 by verification of quality procedures or by equivalence in other certifications.*
- *For companies with more than 250 employees and for subsystems identified in PSR (in the case of subcontracting), ISO 9001 certification delivered by an accredited third-party control body.*

Quality control

5. Reliability plan

Criterion T0

The producer provides a version history of their product and identifies changes implemented to improve the sustainability of the product.

- The manufacturer is able to demonstrate the following points:
  - Identification and monitoring of failures by the technical departments of the manufacturer or its subsidiaries, with supporting statistics
  - Documented reporting of failures according to structured and systematic processes to central departments (Technical/Quality/R&D)
  - Handling and processing of reports by R&D departments, with concrete modifications made to products to constantly improve their reliability and durability.
  - Tracking of modifications made, and for major modifications involving the product's primary function : statistical measurement of their impact to attest to the effectiveness of the improvements made.

Specific methods of proof:

- *Supplier certification and demonstration of quality management to the inspection body mandated during the on-site audit*
- *Product Versioning Template*

6. Disruptive technology

Criterion T0

The producer provides information on the share of disruptive technology embedded in the product and identifies the functions associated with it. It demonstrates the reliability of this technology, especially if it concerns a primary function.

General modes of proof

7. Failure rate

Criterion T1

The producer monitors the actual failure rates and/or indicators per part of the product in order to monitor the reliability of the product at least until the last unit of the model concerned is placed on the market.

- Particular attention will be paid to the following failures:
  - Battery failure:
    - Rapid deterioration of autonomy
    - Faulty BMS card
  - Electronic failure
    - Short circuit (electronic board, component, printed circuit)
    - Alteration of electrical continuity between the battery and the electrobrush

- Engine failure
  - Malfunction of the suction turbine
  - Malfunction of the rotating brush drive motor

General modes of proof

Specific method of proof: maximum failure rate (MFR) Formula: MFR = (Number of after-sales returns/Total number of units sold) x 100

Usage information

8. Product identification

Criterion T0

The producer uses a method allowing the unequivocal identification of the product and its version by interested parties in order to maximize maintenance and failure management processes.

- A digital information system (QRcode type) is specifically present on the battery

General modes of proof

9. Completeness of usage information

Criterion T0

The producer publishes instructions detailing the advice for use and maintenance of the product and offers the user a maintenance plan. This information, also accessible online, must be exhaustive and relevant in order to reduce the exogenous failure rate and encourage responsible use patterns.

- The manufacturer clearly informs the user about the usage scenario(s) to minimize the energy consumption of the vacuum cleaner and explains the differences in consumption between the different operating modes if necessary (ready to operate, deep sleep, off). complete…).

General modes of proof

10. Usage Information Format

Criterion T1

The producer publishes a clear, simple and accessible user and maintenance advice booklet (adapted font size, vocabulary, language and print quality), in order to be easily understandable by end users.

General modes of proof

11. Prolonged immobilization

Criterion T0

The producer identifies the risks of failure linked to a prolonged period of product downtime. It informs the end user of the conditions of use necessary to prevent these risks.

- Applicable: Product family sensitive to non-use in the event of prolonged immobilization without loading
  - Risk of deep discharge

- Consistent duration from which non-use is defined: 6 months

General modes of proof

Repairability

Technical Repairability

In this category of criteria, a tolerance is allowed if the turbine's electric motor cannot be dismantled or sold individually, as long as it's still sold as a spare part through a sub-assembly at a price of less than 30% of the price of the product, and that it meets the reliability requirements described in criterion 1. Resistance to stress.

12. Disassembly of parts

Criterion T0

The dismantling depth is adapted to the category of product parts and the dismantling time is consistent with the type of profile normally capable of carrying out the process.

- Class A: ≤ 5 steps and less than 3 minutes
- Class B: between 5 and 10 steps and less than 10 minutes
- Class C: between 11 and 15 steps and less than 15 minutes
- Class D: > 15 steps and less than 25 minutes

Types of part	Class
Product casing	B
Functional	C
Priority	B
Vulnerable	B
Consumables	A

General modes of proof

13. Fixings and connectors of parts

Criterion T0

Fasteners and connectors have removable and reusable characteristics appropriate to the category of product parts. A system allowing the location of these invisible fixings is put in place.

- Class A : Removable and reusable
- Class B : Removable but non reusable
- Class C : Neither removable nor reusable

Types of part	Class
Product casing	A
Functional	B
Priority	B
Vulnerable	A
Consumables	A

❖ Battery fasteners are removable and reusable, or are supplied with the new battery. More generally, in the event that the fastening system cannot be reused, it must be supplied with the replacement part to enable the failure or maintenance scenario to be resolved.

General modes of proof

14. Tools

Criterion T0

The tools required for repair and/or dismantling must be adapted to the category of parts of the product.

- Class A: repairs feasible without the use of tools, with tools supplied or with basic tools
- Class B: repairs feasible with tools specific to the product family
- Class C: repairs feasible with other commercially available tools
- Class D: repairs feasible with proprietary tools
- Class E: repair not feasible with any existing tool

Types of part	Class
Product casing	A
Functional	A
Priority	A
Vulnerable	A
Consumables	A

❖ Tolerance allowed for proprietary tools supplied or loaned on request, at no additional cost, with the spare part.

❖ The battery is removable. It is considered removable when it can be removed individually from the equipment, without tools or with the help of common commercially available tools, or with tools supplied free of charge with the equipment or battery.

General modes of proof

15. Work environment

Criterion T0

Product-specific repair scenarios are carried out in a working environment adapted to the category of product parts.

- Class A: use environment
- Class B: workshop environment
- Class C: production environment

Types of part	Class
Product casing	A
Functional	A
Priority	A
Vulnerable	A
Consumables	A

General modes of proof

16. Skill Level

Criterion T1

The level of technical skill required to perform a repair is consistent with the category of parties involved.

- Class A: Novice skills
- Class B: Generalist skills
- Class C: Expert skills
- Class D: Manufacturer or approved expert
- Class E: Impossible to achieve with existing skills

Types of part	Class
Product casing	A
Functional	B
Priority	B
Vulnerable	B
Consumables	A

❖ In particular, the battery is replaceable by end-users with novice repair skills.

General modes of proof

17. Spare parts interface

Criterion T0

The different parts of the product and their connection interfaces present standardization practices adapted to the repairability expectations of the product family.

- Class A: Standard part with standard interface
- Class B: Standard or proprietary part with standard interface
- Class C: Proprietary part with non-standard interface

Types of part	Class
Product casing	B
Functional	B
Priority	B
Vulnerable	B
Consumables	B

General modes of proof

Organizational repairability

18. Availability time for spare parts

Criterion T0

The time for making spare parts available is at least equal to the expected lifespan of the product category and its different parts. The duration of accessibility is assessed from the placing on the market of the last unit of the model concerned.

- Class A: Long-term accessibility (10 years)
- Class B: Medium-term accessibility (7 years)
- Class C: Short-term accessibility (5 years)
- Class D: No information on the duration of accessibility

Types of part	Class
Product casing	B
Functional	B
Priority	B
Vulnerable	B
Consumables	A

❖ If a proprietary, non-standardized battery is used, the availability period of this priority part is increased to 13 years

General modes of proof

19. Accessibility of spare parts to target audiences

Criterion T1

The producer ensures the provision of spare parts for target groups normally suited to the category of parts.

- Class A: Accessible to all audiences without restriction
- Class B: Accessible to independent repair service providers
- Class C: Accessible to service providers approved by the manufacturer
- Class D: Accessible only to the manufacturer

Types of part	Class
Product casing	A
Functional	B
Priority	A
Vulnerable	A
Consumables	A

❖ The spare parts and the procedure for ordering them shall be publicly available on the free access website of the manufacturer, until the end of the period of availability of these spare parts.

General modes of proof

20. Terms of sale of spare parts

Criterion T1

The manufacturer details the terms of sale of its spare parts. They reflect the product nomenclature and are not sold as a group, unless justified by coherent and verifiable design, calibration and/or economic reasons.

❖ Particular attention will be paid to the following parts :
- Battery replacement
- Electrobrush motor replacement
- Motor turbine replacement
- Brush bellows replacement
- Replacement electronic power board

General modes of proof

21. Price of spare parts

Criterion T1

The value of a spare part may not exceed a maximum percentage of the recommended selling price excluding VAT. A tolerance is allowed for parts whose PRU exceeds the specified percentage.

❖ Percentage set at 25%

General modes of proof

22. Shipping costs for spare parts

Criterion T1

The producer delivers the spare parts at the actual cost of shipping and preparation, or offers alternative solutions that reduce the cost of receiving the parts.

Mood of proof: Visual inspection and real-time demonstration to the mandated inspection body during the documentary audit or on-site audit.

23. Delivery time for spare parts

Criterion T1

The producer demonstrates its ability to provide spare parts to interested parties in less than 5 working days.

General modes of proof

24. Failure scenario documentation

Criterion T1

The manufacturer makes available relevant information and instructions for resolving failure scenarios and/or implementing the maintenance plan.
These are also adapted to the product category and target audience groups. The minimum duration of information availability is specified below.

- Class A = Accessible to all without restriction
- Class B = Accessible to independent repair service providers
- Class C = Accessible to repair service providers authorised by the manufacturer
- Class D = Accessible to the manufacturer only

Documentation	Class	Documentation availability time
Disassembly diagrams, reassembly if necessary or exploded views	A	10 years
Wiring and connection diagrams	A	10 years
Electronic card diagrams	C	10 years
A technical instruction manual for resolving failure scenarios	A	10 years
A list of necessary repair and testing equipment	A	10 years
Component and diagnostic information (such as theoretical minimum and maximum values for measurements)	B	10 years
Instructions on how to contact customer service and specific contacts associated	A	10 years
Information on the price of spare parts	A	10 years

*time after production shutdown

General modes of proof

25. Support for fault diagnosis

Criterion T0

The producer communicates information and/or deploys diagnostic support mechanisms to help identify failure scenarios.

- Class A = Intuitive interface
- Class B = Coded interface with public reference table
- Class C = publicly accessible hardware/software interface
- Class D = Proprietary interface
- Class E = Impossible, whatever the type of interface

❖ Classe A

- Diagnostic support system with an intuitive or coded interface with public access to the reference table.

OR

- The sales website of the robot manufacturer or distribution partners has a fault tree type fault diagnosis interface.

General modes of proof

Scalability

26. Resetting settings and passwords

Criterion T0

In the event of repair or transfer to a third party, the product's user data management processes enable secure, high-performance reuse.

- Class A = Integrated reset
- Class B = External reset
- Class C = Service reset
- Class D = No reset

❖ Class A

General modes of proof

27. Software

Criterion T0

The manufacturer ensures that the original performance of its product is maintained when updating the operating system and/or firmware, and differentiates between evolutionary and corrective updates. Users are informed of the consequences of updates, and their consent is required.

❖ The minimum update availability time is 8 years for products equipped with features IOT

General modes of proof

Quality of after-sales service

28. Internal failure resolution policy

Criterion T1

In the event of product failure, the producer pursues a policy of repair or reconditioning rather than replacement, unless repair is more expensive than replacement, taking into account the wishes of users.

General modes of proof

29. After-sales service contact

Criterion T1

The producer demonstrates that the opening of an after-sales service file does not exceed 2 working days and that the average time taken to resolve the file encourages repairs.

General modes of proof

30. Return Services

Criterion T0

The producer provides end-users with return services adapted to the product category and consistent with its distribution network, regardless of the status of warranties.

- Class A = Complete return options
- Class B = Basic return options
- Class C = No return option

❖ Class B: Basic return service with minimum return conditions by post or distribution/collection point

General modes of proof

31. Condition of restitution

Criterion T0

The return of the original packaging cannot be demanded for the repair of the product, as long as it is packaged and protected as much as it could have been at the time of purchase.

❖ Special protection conditions may be required taking into account the presence of a battery in order to guarantee the safety of people and infrastructure

General modes of proof

32. Product of great utility

Criterion T1

In its network, and for product categories considered "highly useful", the manufacturer minimizes the repair process time until the product is returned to the end-user.

- Not applicable

33. Warranty time

Criterion T0

The warranty period with presumed anteriority of defect may not be less than 24 months.

- Minimum 2-year warranty on:
  - **Engine block assembly**
    - Motor-turbine block
  - **Electro-brush assembly**
    - Electrobrush
  - **Battery set**
    - Battery

General modes of proof

34. Exclusion of warranty

Criterion T0

In its general warranty conditions, the manufacturer does not introduce any abusive exclusion(s) with regard to the normal use of the product.

Examples of abusive exclusions identified

- Surface micro-scratch
- Trace of dust

General modes of proof

Life cycle

Extended sustainability

35. Protection of health, safety and environment

Criterion T0

With regard to human health, the safety of people and installations, and environmental protection, the manufacturer proves that it is taking action at a level that complies at least with the requirements of European directives 2011/65/EU and (EC) No 1907/2006 on the restriction of the use of certain hazardous substances in equipment, and/or action to preserve the ecosystems that are most affected.

Mode of proof: For products distributed in geographical areas potentially covered by regulatory prerogatives establishing requirements similar to the European market in terms of limiting the use of certain hazardous substances in EEE, proof of compliance with these regulatory requirements will be used as a method of proof in compliance with the RSPs of this criterion if necessary.

- For large companies (workforce > 5,000 people), the main site(s) involved in the production of the product have certification linked to an international environmental management standard.

Mood of proof: ISO 14001 certification delivered by an accredited third-party inspection body.

- In order to reduce the impact of the manufacturing phase, the manufacturer deploys at least two of the following three characteristics:
  - The site responsible for producing the accumulator has third-party quality certification linked to ISO 14001 type environmental management regardless of the size of the company.
  - The site responsible for the “plastics processing” phase has third-party quality certification linked to ISO 14001 type environmental management regardless of the size of the company.
  - The metal parts and more particularly the suction tube are made of recycled material at least up to:
    - 17% for steels
    - 28% for stainless steel
    - 80% for l’aluminium

Mood of proof: Composition and characterization of paints. Third-party quality certification demonstrating the ecological aspect of the paints used according to recognized testing standards. Certificate of origin of the safe’s composition materials

- Polymers introducing flame retardants into their compositions are drastically restricted and are subject to consistent technical justification.

or

- Polymers introducing flame retardants are banned.

General modes of proof

36. Energy and/or environmental performance

Criterion T0

To reduce the impact of energy consumption or pollution emissions, the manufacturer demonstrates the environmental and/or energy performance of its products.
It proves that it is taking action at a level that complies, as a minimum, with the prerogatives of European directives and/or regulations :

- (EU) 2009/125/EC (including its implementing measures) on the eco-design of energy-related products
- (EU) 2017/1369 (including delegated regulations) on the energy labeling of products if the product claiming the LONGTIME® label is concerned
- ESPR - The Ecodesign for Sustainable Products Regulation (EU) 2024/1781

Mode of proof: for products distributed in geographical areas potentially covered by regulatory prerogatives establishing requirements for energy efficiency, eco-design and energy labelling similar to the European market, proof of compliance with these regulatory requirements will be used as a method of proof in compliance with the RSPs of this criterion if necessary.

❖ The annual energy consumption of upright hoovers is between 16 < AE ≤ 22

Specific mode of proof: For more details see precisions here

❖ Upright vacuum cleaners, when not in use, have maximum consumption equivalent to:

- Maximum 0.5 Watt in standby mode (without information display)
- Maximum 1 Watt when it provides information (time, water temperature, error code)
- Maximum 2 Watts per IOT

Eco-design measures assessed by the Control Body mandated during the audit and supplemented by the documentation and technical specifications referred to in Article 12, paragraph 5 of REGULATION (EU) 2017/1369 present in the European Commission Database and relating to product conformity.

❖ At maximum continuous power, excluding temporary modes (such as boost or turbo), the vacuum cleaner must not exceed a sound power level of 80 dBA, regardless of the type of floor (hard floor or carpet) or the type of brush used.

Specific mode of proof: Noise emission report to EN 60704-2-1. Eco-design measures assessed by the Control Body mandated during the audit and supplemented by the documentation and technical specifications referred to in Article 12, paragraph 5 of REGULATION (EU) 2017/1369 present in the European Commission Database and relating to product conformity.

❖ Dust collection on carpets and hard floors with the universal brush

- Dust collection on carpets must be greater than 0.85 (85%).
- Dust collection on hard floors with slots must be greater than 1.07 (107%).
- Dust re-emission rate less than 0.1%

Mood of proof: Test report based on EN 60312-1 standard. Eco-design measures assessed by the Control Body mandated during the audit and supplemented by the documentation and technical specifications referred to in Article 12, paragraph 5 of REGULATION (EU) 2017/1369 present in the European Commission Database and relating to product conformity.

37. End of life management of equipment

Criterion T0

As part of the management of end-of-life equipment, the manufacturer proves that it deploys actions for the collection, recovery and effective treatment of used products according to a level of requirement that complies at least with the prerogatives of European directives 2012/19/EU of July 4, 2012 on waste prevention and treatment depending on the target product group.

Mood of proof: In geographic distribution areas covered by regulatory prerogatives establishing product collection and recycling requirements, proof of compliance with these regulatory requirements will serve as a mode of proof in compliance with the PSRs of this criterion if necessary.

- All plastic parts must be composed of simple polymers or directly recyclable polymer blends.
- In order to facilitate the reuse of materials, the producer provides detailed markings, making it possible to identify the specifications of the polymers and/or polymer blends used in the manufacture of the product.
- Plastics must be made from a single polymer or plastic parts weighing more than 25 grams must be labelled in accordance with ISO 11469 to enable the different plastic materials to be separated.
- Plastic parts weighing more than 50 g must be able to be dismantled without permanent damage to the product and using common tools.

  General modes of proof (Reach and/or ROHS and WEEE) and relevant dismantling instructions for people handling old appliances

- Extended Producer Responsibility (EPR) and reuse, refurbishment and/or recycling of parts and products : the characteristics of the product and the manufacturer's practices result in a minimum **class B** among the classes listed below.

Class A	For the main markets (> 10% of sales of certified product) where certified products are sold, the brand owner provides a take back scheme which demonstrably promotes and puts into practice reuse and/or refurbishment of parts and products, as opposed to recycling only, while being legally compliant with applicable EPR regulations
Class B	For all markets where certified products are sold and where EPR regulations apply, the brand owner participates in accredited EPR schemes or provides a reuse/recycling scheme which fulfills the requirements to be exempted from participation in EPR schemes. In all markets without EPR regulations, the brand owner provides voluntarily a take back possiblitiy involving accredited reuse/recycling facilities

Class C	For all markets where certified products are sold and where EPR regulations apply, the manufacturer participates in accredited EPR schemes or operates a reuse/recycling scheme which fulfills the requirements to be exempted from participation in EPR schemes (legal compliance)

Mode of proof: In geographic distribution areas covered by regulatory prerogatives establishing product collection and recycling requirements, proof of compliance with these regulatory requirements will be used as a method of proof in compliance with the RSPs of this criterion if necessary. Use of EPR and/or reuse/recycling facilities certified to internationally accredited standards (R2, e-Stewards, EN50625 or equivalent)

38. Packaging management

Criterion T1

As part of the fight against waste production, the manufacturer is making efforts to eliminate the proportion of non-recyclable plastic waste from its packaging through:

- 95% minimum by weight of all recycled and/or recyclable and/or reusable packaging waste
- Manual separability of components of non-recoverable and non-reusable packaging weighing more than 25 grams in a single component.
- Product packaging must not contain lead (Pb), cadmium (Cd), mercury (Hg) or hexavalent chromium (Cr6).

Mood of proof: Composition and characterization of packaging.

- Packaging made from biobased materials has recognised third-party quality certification proving the sustainable management of resources.

Mood of proof: Composition and characterisation of packaging. Attestation of third-party certification or labelling

VIII. TERMS AND DEFINITIONS

Depending on sectoral standards, definitions specific to different product categories (parts, functions, etc.) can be added to the recurring definitions below.

AMDEC / FMEA
Tools allowing the Analysis of Failure Modes, their Effects and their Criticality / Failure Mode and Effect Analysis.

Permanent assembly
It is a set of components forming a single piece or part of a product and cannot be dismantled without destruction or alteration of the use for which it is intended.
To remove the connection between two assemblies or parts, it is necessary to deform, degrade or destroy at least one of the parts forming the assembly. Examples: welding, crimping, clinching, stamping, bonding and adhesives.

Constraint of use
It corresponds to the forces which apply to the part.

Criticality
The criticality of a failure refers to the importance or impact of this failure on the proper functioning of a product. It is evaluated according to the severity of the consequences that the failure could cause, particularly in terms of safety/costs, and the frequency of occurrence.

Actual failure
Failure which is actually linked to a malfunction of the product and not to an exogenous problem. (e.g. power outlet not powered, power cable not properly connected, lid not properly locked, etc.)

Expected lifespan
Period during which the user expects their product to perform as intended.

Seasonal energy efficiency for space heating
The ratio (Ns), expressed as a %, between the space heating demand for a designated heating season, covered by a heating device, and the annual energy consumption required to meet this demand.

Household appliances
Product powered by electrical energy and intended for domestic use only.

Compostable packaging
Container designed with materials capable of decomposing naturally under the action of microorganisms present in the composter to become a natural or organic element of the substrate.

Reusable packaging
Container designed to be used multiple times, reducing the need for disposable packaging.

Non-recoverable packaging
Refers to a type of packaging that cannot be effectively recovered, recycled or reused after use.

Regular maintenance
Maintenance recommended by the manufacturer to keep the product in optimal operating condition.

EOS
Acronym for Electrical Overstress reflecting a state of undesirable electrical overload likely to lead to damage or failure of the product.

Step (disassembly)
Operation leading to the removal of a part or a tool change.

HS
Out of service ; corresponds to exiting the functional state.

IOT
Internet of Things or internet of objects; This function corresponds to the fact of being able to connect your product to the internet in order to obtain additional remote control and/or regulation functionalities.

Non usage
It corresponds to a non-operating state of the device.

O.S
Operating System, or operating system, is a set of programs that direct the use of a computer's resources by application software.

“General public” tools
Common tools, for general use, available to the general public in traditional distribution and as specified in the EN 45554 standard tools list: screwdriver (slotted head screw, cruciform, 6 internal lobes, wrench (hexagon socket screw, mixed), pliers (universal, half-round nose, diagonal cutting, power strip, vice, for stripping and crimping terminals), pry bar, tweezers, hammer with steel head, utility knife (cutting pliers with retractable blade), multimeter, voltage tester , soldering iron, glue gun, magnifying glass.

“Experienced Audience” tools
Tools requiring skills to use and whose cost can represent a barrier (torque wrench, soldering iron, etc.).

“Professional” tools
Tools requiring specific knowledge or conditions of use and whose acquisition cost represents an investment.

Proprietary tool
Specific tool, not commercially available, belonging exclusively to a party or a company, and by virtue of which, its use by another party (end user, customer, repairer) implies copyright, a license and/or a cost.

Spare part
A spare part is a separate part that is an integral part of a product, essential to fulfil its primary function. It is not supposed to be replaced as part of normal use of the product, but it may be replaced as a result of accidental damage, long-term wear and tear, premature wear due to incorrect use or maintenance, or misplacement. In such cases, the spare part will be exchanged for a replacement part.

Replacement or spare part
A replacement or spare part is a separate part intended to replace a defective or damaged spare part with the same or similar function.

Adaptable, compatible or standardised spare part
These are parts that can be adapted to several models, products, brands of the same product, more or less faithful copies of original parts that are not manufactured in accordance with the original manufacturer's specifications and are not sold in the original manufacturers' packaging.

Used part
A spare part which, at any stage in the production or distribution of the products, has come into the possession of a person for his or her own use, by the effect of any act for valuable consideration or free of charge, or has undergone alterations which do not allow it to be offered for sale as new.

Refurbished parts
A used spare part can be qualified as ‘reconditioned’ if the following conditions are met:

- The product or spare part has undergone tests covering all its functions in order to establish that it meets the legal safety requirements and is fit for the purpose for which the consumer can legitimately expect it to be used.
- If applicable, the product or spare part has undergone one or more interventions in order to restore its functionality. This intervention includes the deletion of all data recorded or retained in connection with a previous use or a previous user, before the product or part changes ownership.

External source parts
Parts external to the manufacturer's production body, coming from an identified supplier.

Unit cost price “PRU” of a product/part
Understood as the sum of the price of the parts making up a product/components of a part.

“Great utility” product

A very frequently used product which, in the event of a breakdown, causes a significant disruption in day-to-day management: refrigerator, washing machine, boiler/water heater, telephone, computer, hob, etc.

Disassembly depth
Corresponds to the sum of the steps allowing individual access to each part and detaching it from the equipment, with a view to its replacement.

Data management process
Refers to all the practices and procedures put in place by an organization to collect, store, process, protect, and manage the personal information of individuals using their products.

PSR
“Product Specific Requirement” corresponds to the criterion specifications applicable to the types of equipment specified within the scope of the framework.

Serialization
Practice by which the producer limits the use of spare parts to only original parts that he approves, in particular by software means.
Example: associate the serial numbers of the components of a product with the overall serial number of the product.

Subset
Set of connected components inseparable from each other which form a block and provide a function. The subassembly can be separated from the product.
Example: Motor and welded electronic card

Disruptive technology
Technology whose operation brings an innovation or a major technological advance compared to previous ones and whose reliability has not yet been fully proven over time.

IX. CALCULATION OF ANNUAL ENERGY CONSUMPTION

AE for Annual energy consumption = 4 × (87/4) × 200 × 0,001 × ASE × ((Mh × 8026) / 1000))

- **4** is the standard number of times that a vacuum cleaner passes over each point on the floor (two double strokes)
- **87** is the standard dwelling surface to be cleaned in m2
- **50** is the standard number of one-hour cleaning tasks per year
- **0,001** is the conversion factor from Wh to kWh
- **ASE** is the average specific energy consumption in Wh/m2 during test
- **Mh** is the power consumption in maintenance mode in W
- **8026** is the annual number of hours spent in maintenance mode

Annual Spécifique energy (ASE) according with IEC 62885
ASE = 0.5 x SEhf + 0.5 x SEc

- **SEhf** for Specific Energy on Hard Floor according IEC 62885 = **(NPhf + Phf) ÷ (1800 x l) = Wh/m2**
- **SEc** for Specific Energy on Carpet = **(NPc + Pc) ÷ (1800 x l) = Wh/m2**
- **NPhf** for Nominal Power at high frequency in Watt
- **Phf** for Average power during hard floor cleaning in Watt
- **NPC** for Nominal Power Carpet in Watt
- **Pc** for Average Power during Carpet Cleaning in Watt
- **L** for Test Floor Length according with IEC 62885

X. BIBLIOGRAPHICAL RESOURCES

This paragraph mentions the main bibliographic resources that were useful in the development of the sector reference and are likely to evolve depending on the target product groups.

- IEC 60335-1:2020 Appareils électrodomestiques et analogues - Sécurité - Partie 1 : Exigences générales
- IEC 60335-2-2:2019 Appareils électrodomestiques et analogues - Sécurité - Partie 2-2 : Règles particulières pour les aspirateurs et les appareils de nettoyage par aspiration d'eau
- DIRECTIVE 2009/125/CE du 21/08/2009 établissant un cadre pour la fixation d'exigences en matière d'écoconception applicables aux produits liés à l'énergie (refonte)
- RÈGLEMENT (UE) No 666/2013 du 08/07/2013 portant application de la directive 2009/125/CE du Parlement européen et du Conseil en ce qui concerne les exigences d'écoconception applicables aux aspirateurs et ANNEX II Measurement and calculation methods

- DIRECTIVE 2006/42/CE du 17/05/2006 relative aux machines et modifiant la directive 95/16/CE (refonte)
- DIRECTIVE 2014/35/UE du 26 février 2014 relative à l'harmonisation des législations des États membres concernant la mise à disposition sur le marché du matériel électrique destiné à être employé dans certaines limites de tension(refonte) low voltage directive (LVD)
- DIRECTIVE 2011/65/UE relative à la limitation de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques
- DIRECTIVE 2012/19/UE DU PARLEMENT EUROPÉEN ET DU CONSEIL du 4 juillet 2012 relative aux déchets d'équipements électriques et électroniques (DEEE) (refonte)
- Règlement (CE) no 1907/2006 concernant l'enregistrement, l'évaluation et l'autorisation des substances chimiques, ainsi que les restrictions applicables à ces substances (REACH)
- DIRECTIVE 2012/19/UE relative aux déchets d'équipements électriques et électroniques (DEEE)
- Règlement Délégué(UE) 2019/2015 complétant le règlement (UE) 2017/1369 en ce qui concerne l'étiquetage énergétique des sources lumineuses et abrogeant le règlement délégué (UE) no 874/2012
- EN 60312-1 Aspirateurs de poussière à usage domestique Partie 1: Aspirateurs de poussière - Méthodes de mesure de l'aptitude à la fonction
- RÈGLEMENT (UE) 2023/1542 du 12/07/2023 relatif aux batteries et aux déchets de batteries, modifiant la directive 2008/98/CE et le règlement (UE) 2019/1020, et abrogeant la directive 2006/66/CE
- DIRECTIVE (UE) 2006/66/CE du 06/09/2006 relative aux piles et accumulateurs ainsi qu'aux déchets de piles et d'accumulateurs et abrogeant la directive 91/157/CEE
- DIRECTIVE 2014/30/UE du 26/02/2014 relative à l'harmonisation des législations des États membres concernant la compatibilité électromagnétique (refonte)
- Norme EN 45552 Méthode générale pour l'évaluation de la durabilité des produits liés à l'énergie
- Norme EN 45554 Méthodes générales pour l'évaluation de la capacité de réparation, réutilisation et amélioration des produits liés à l'énergie
- Norme IEC 60384-14 Condensateurs fixes utilisés dans les équipements électroniques –
  Partie 14: Spécification intermédiaire – Condensateurs fixes d'antiparasitage et raccordement à l'alimentation

- EN 60384-14 Condensateurs fixes utilisés dans les équipements électroniques - Partie 14 : spécification intermédiaire - Condensateurs fixes d'antiparasitage et raccordement à l'alimentation
- EN 60529 Degrés de protection procurés par les enveloppes (code IP) (UL50E ou NEMA 250)
- EN 62262 Degrés de protection procurés par les enveloppes de matériels électriques contre les impacts mécaniques externes (code IK)
- EN 60068-2-75 Essais d'environnement - Partie 2-75 : essais - Essai Eh : essais au marteau
- https://www.topten.eu/private/selection-criteria/vacuum-cleaners
- https://www.coolproducts.eu/wp-content/uploads/2020/11/ECOS-EEB-Coolproducts-reuse-ifixit-R2R-Topten-position-on-EC-proposal-on-VACUUM-CLEANERS.pdf
- PROMPT - Premature Obsolescence Multi-Stakeholder Product Testing Program
- Current State of Durability Assessment for Four ConsumerProduct Groups (Vacuum cleaners, washing machines, mobile phones and television sets)
  Daniel Hahn, Frederic Sehr, Stefan Straube, Tom Dobs, Anton Berwald, Olaf Wittler, Martin Schneider-Rame-low - Fraunhofer IZM, Berlin, Germany
- *Lithium-Ion Batteries Hazard and Use Assessment _ Exponent Failure Analysis Associates, Inc. July 2011 Fire Protection Research Foundation*
- *Aging Test Results for High Temperature TRIACs During Power Cycling Sébastien JACQUES(a),(c), Nathalie BATUT(a), René LEROY(b) and Laurent GONTHIER(a),(c) (a) Power Microelectronics Laboratory (LMP), Tours University, France (b) Mechanical Laboratory (LMR), Tours University, France*
- *Special review study on durability tests According to Article 7(2) of Commission Regulation (EU) No 666/2013 with regard to ecodesign requirements for vacuum cleaners*
- *Review study on Vacuum cleaners Final report - Viegand Maagøe A/S & Van Holsteijn en Kemna B.V. - June 2019*
- https://www.topten.eu/private/selection-criteria/vacuum-cleaners
- https://www.coolproducts.eu/wp-content/uploads/2020/11/ECOS-EEB-C

XI. VERSION UPDATE

Implemented in 2025, the LONGTIME V2 base reference system is scheduled to be valid for 5 years before its next revision in 2030, with the exception of minor changes.

Version number	Date of release	Summary of action	Editor
Drat_Vaccum V1.6	04/2024	Editing and distribution of draf	F.Preguesuelo
Drat_Vaccum V2	10/2024	Draft evolution	F.Preguesuelo
Edition_Vaccum V2	06/2025	Closure of the repository	F.Preguesuelo

XII. THANKS

All stakeholders who contributed to the development of the sectoral benchmarks are thanked here.