LONGTIME®

Certification standard

Mobile/Fixed Food Regeneration and/or Holding System

TABLE OF CONTENTS

10. Usage information format
11. Prolonged immobilization

Repairability

12. Disassembly of parts
13. Part fasteners and connectors
14. Tools
15. Working environment
16. Competence level
17. Spare parts interface
18. Spare parts availability time
19. Accessibility of spare parts to target audiences
20. Terms and conditions for the sale of spare parts
21. Spare parts prices
22. Shipping costs for spare parts
23. Spare parts delivery times
24. Documentation of failure scenarios
25. Support for fault diagnosis
26. Reset settings and passwords
27. Software
28. Internal failure resolution policy
29. Service contact
30. Return services
31. Return condition
32. Useful product
33. Warranty time
34. Warranty exclusions

Lifecycle

35. Health, safety and environmental protection
36. Energy and/or environmental performance
37. Equipment end-of-life management
38. Packaging management

VIII. TERMS, DEFINITIONS, CLARIFICATIONS

IX. BIBLIOGRAPHICAL RESOURCES

X. VERSION UPDATE

XI. ACKNOWLEDGEMENTS

I. GENERAL INFORMATION

Based on the EN45550 series of standards, and consistent with EN45552 and EN45554, the LONGTIME® specific standards specify elements relating to the study of the robustness, reliability and repairability of the associated product family.
All qualitative, semi-quantitative and quantitative data are derived from a research and consultation process, as required by current standards, and take into account bibliographical references (scientific studies, regulations, standards, etc.) and all stakeholders involved.) and all stakeholders, i.e.: marketers (manufacturers, importers, distributors), their suppliers and/or subcontractors, product experts (repairers, installers, professional testers), spare parts professionals, reconditioners, consumers, consumer associations, environmental associations and any other stakeholder who can contribute, subject to added value and the availability of networks and information.

LONGTIME® vision

This project is part of a dynamic social movement, with the aim of moving ahead of regulations. This label is made by citizens, for citizens. It provides the 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, powerful and effective tool, designed to inform consumers who are concerned about the overall impact of their purchases, as well as those who wish to acquire a product with a fair longevity/price ratio. It also aims to put the spotlight on manufacturers keen to offer products with an optimized lifespan.

Label objectives

The aim is to encourage a different kind of consumption, with a view to producing differently. Virtually all citizens would like to see a transformation of the consumer society, with a real paradigm shift in technical and economic thinking, in order to consume better and more sustainably.
As studies « Modélisation et évaluation environnementale de produits de consommation et biens d'équipement » and « Évaluation environnementale et économique de l'allongement de la durée d'usage de biens d'équipements électriques et électroniques a l'échelle d'un foyer » from the Agence De l'Environnement et de la Maîtrise de l'Énergie Française (ADEME) show, the ecological interest is major: in the space of a few decades, we have multiplied our consumption of raw materials to over 60 billion tonnes a year.
The label helps to preserve the planet's resources by making better use of them and reducing waste.

Intuitively, then, buying a product with an optimized lifespan encourages the rational use of our planet's resources, reduces over-consumption and helps us to move away from disposable and wasteful products. It's not a question of looking for "immortal" products, but rather of fighting against the short lifespan of products.

Impact of durability of Mobile/Fixed Food Regeneration and/or Holding System

Extending the service life of meal trolleys, refrigerated cabinets or regeneration and hot holding ovens by a few years can help reduce the impact indicator results associated with the upstream life cycle stages, particularly manufacturing.
For other impact categories, the benefits of extending service life will largely depend on the energy efficiency of both the original product and its replacement, bearing in mind that the average lifespan of such professional equipment ranges from 7 to 10 years.
Therefore, replacing a regeneration or hot holding system prematurely—before 10 years—may only be environmentally beneficial if the replacement product offers a significant improvement in energy performance.

Fields of application

The label applies to various product categories, provided they consist of an assembly of parts. LONGTIME® aims to cover household appliances, electronic devices, portable electrical tools, furniture, leisure equipment, and professional equipment. The range of products is therefore very broad, but excludes complex technological sectors (such as automotive and aerospace), textile products (except leather goods), foodstuffs, cosmetics, and chemical products.

Reference system organization

The criteria are broken down into 3 main families and grouped into 9 categories. The criteria are presented as follows:

Criteria category

Criteria subcategory

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)

Criteria **TO**	These criteria must be met to qualify for certification after the initial audit (year N).
Criteria **T1**	These criteria must be met by at least 70% at the time of the audit. Corrective action will be taken to achieve 100% compliance by year N+1.

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.

Control system

Compliance with the standard's criteria is assessed by an independent, accredited inspection body.
Each criterion is assessed according to a compliant/non-compliant approach. Assessment of compliance with the criteria is carried out by an approved, independent inspection body, using auditors who must be qualified by the label manager and who have received initial training in the entire LONGTIME® programme in order to ensure efficient control.
For more details on the control system used in the labeling process, click here:
https://www.longtimelabel.com/conditionslongtime

Standards and regulations

The standards and regulations cited in the standard are based on the most recent versions and/or equivalents published in the Official Journal of the European Union.

General mode of proof

A series of documents and administrative procedures are useful for establishing proof of compliance with various criteria:

- Visual inspection by mandated third-party auditor during in-situ audit
- All European legislation applicable to the product family, in particular: technical specifications referred to in article 12, paragraph 5 of the REGULATION (UE) 2017/1369 present in the European Commission's product conformity database (CE marking database), EMC, ROHS, WEEE, machine safety directives
- Technical specifications for 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 service data
- Any documentation/software to support compliance, such as :
  - Internal product data sheet
  - Functional analysis tool
  - Design study (function, materials, usage constraints)
  - Performance and endurance testing
  - Qualification phase and test
  - Failure rate study
  - Operating instructions
  - Maintenance manual
- Terms and conditions of sale

II. PRODUCT SCOPE DEFINITION

The “Mobile/Fixed Food Regeneration and/or Holding System” standard focuses on professional appliances used for cold holding, hot holding, or food regeneration, ensuring that food is maintained at appropriate temperatures to guarantee consumer food safety.
Primarily used in the catering, institutional food service, and food retail sectors, these appliances convert electrical energy into heat via heating elements, or into cold via refrigeration systems, relying on control systems to ensure uniform temperature distribution.
Unlike fixed installations, mobile equipment is designed for easy transport across various working environments and features high-quality insulation materials to maximise energy efficiency.

Product scope

- Mobile system for heating and/or maintaining temperature, with forced air circulation
  - (onboard technology, shuttle type)
  - (without embedded technology, such as a terminal or cart)
- Fixed system for maintaining and/or restoring temperature (e.g. electric oven, refrigerated display case, etc.)

Outside product scope

- Induction meal trolley
- Meal trolley with temperature sensor
- Domestic cooking appliance
- Neutral materials

In the remainder of the standard, the term “**Mobile/Fixed Food Regeneration and/or Holding System**” is shortened to “**Regeneration/Holding System**” wherever possible.

III. NOMENCLATURE OF PARTS

This chapter details a typical nomenclature, representative of the target product group but not exhaustive. The various parts present in the BOM will then be prioritized by type of part.

- **Ensemble “structure”**
  - Frame (profile, tube, sheet metal)
  - Feet
  - Cover (protective casing)
  - Insulated panels
  - Inner wallsDoors
  - Door hinges
  - Door locking mechanism (latches)
  - Sealing gasket(s) (doors)
  - Baffle
  - Top and bottom panels
  - Access hatch
  - Racks (tray, container)
  - Tray runner / shelf runner
  - Container support
  - Filter

- **Transport assembly**
  - Swivelling castor wheel
  - Wheel bracket (mounting plate)
  - Bearings
  - Brakes
  - Handling handle / Grab handle
  - Bumper(s)
  - Corner bumper(s)
  - Sealing gasket(s) (terminal/trolley interface)

- **Display and control assembly**
  - Analogue or digital display
  - Control button (mechanical, touch, capacitive)
  - Programme selector, timer, switch
  - Control panel / Control fascia
  - On/off switch

- **Electrical and electronic assembly**
  - Power supply board or module
  - Control board or module
  - Display board or module
  - Heating system control board or module
  - Sensors and probes, such as temperature probe (NTC type) or thermostat
  - IoT or connectivity board/module (Bluetooth, Wi-Fi, etc.)
  - Auxiliary connectors and/or ports (e.g. USB or diagnostic)
  - EMI filter or interference suppression module

- Power component for heating system (triac and capacitor)
- Start capacitor for motor fan and compressor
- Electronic locking system (switch, position sensor)
- Wireless control receiver (radio, Wi-Fi…)
- Internal wiring, ribbon cables
- Power supply cable
- Electrical terminal block
- Overheating/overcurrent protection device
  - Thermal fuses
  - Resettable thermal circuit breaker
  - Overcurrent protection fuse (amp fuse)
  - Electromechanical safety thermostat (e.g. Klixon type)
  - Temperature probe (NTC type)

- **Refrigeration assembly**
  - Compressor
  - Condenser (air-cooled or water-cooled)
  - Condenser fan (motor, impeller or blades)
  - Liquid receiver
  - Evaporator
  - Evaporator fan (for forced-air cooling)
  - Dryer / Desiccant filter
  - Solenoid valve
  - Expansion valve
  - Evaporation tray

- **Heating assembly**
  - Heating element(s) (bottom/base, top/vault, circular)
  - Heating fan motor (tangential, convection, forced-air heating)
  - Evaporator fan motor
  - Sealed heating chamber or cavity
  - Water tank (for humidity control)
  - Water pump (for humidity control)

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

IV. PRIORITIZATION BY PARTY CATEGORY

Product housing

This covers all the parts used to protect the product's internal components from the outside world.

- **Structural assembly**
  - Cover (protective casing)
  - Insulated panels
  - Doors
  - Baffle
  - Top and bottom panels
  - Access hatch

Functional parts

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

- **Structural assembly**
  - Frame (profile, tube, sheet metal)
  - Pieds
  - Grilles racks (plateau, bac)
  - Platform ladder
  - Tray support

- **Transport assembly**
  - Swivelling castor wheel
  - Wheel bracket (mounting plate)
  - Bearings
  - Brakes
  - Handling handle / Grab handle
  - Sealing gasket(s) (doors or terminal/trolley interface)

- **Electrical and electronic assembly**
  - Electrical terminal block
  - Auxiliary connectors and/or ports (e.g. USB or diagnostic)
  - Internal wiring, ribbon cables

Priority parts

Parts that are functional but critical in the event of malfunction or breakdown (sometimes called critical parts).

- **Structural assembly**
  - Door hinges

- **Ensemble électrique et électronique**
  - Electrical terminal block
  - Power supply board or module
  - Control board or module
  - Display board or module
  - Heating system control board or module
  - Sensors and probes (e.g. temperature probe – NTC type – or thermostat)
  - IoT or connectivity board/module (Bluetooth, Wi-Fi…)
  - EMI filter or interference suppression module
  - Power components for heating system (triac and capacitor)
  - Start capacitor for fan motor and compressor
  - Electronic locking system (switch, position contactor)
  - Wireless control receiver (radio, Wi-Fi…)
  - Overheating/overcurrent protection device
    - Thermal fuses
    - Resettable thermal circuit breaker
    - Overcurrent protection fuse (amp fuse)
    - Electromechanical safety thermostat (e.g. Klixon type)
    - Temperature probe (NTC type)

- **Refrigeration assembly**
  - Compressor
  - Condenser (air-cooled or water-cooled)
  - Condenser fan (motor, impeller or blades)
  - Liquid receiver
  - Evaporator, evaporator fan (for forced-air cooling)
  - Dryer / Desiccant filter
  - Solenoid valve
  - Expansion valve

- **Heating assembly**
  - Heating element(s) (bottom/base, top/vault, circular)
  - Heating fan motor (electric motor and impeller)
  - Evaporator fan motor (electric motor and impeller)
  - Sealed heating chamber or cavity
  - Water pump (for humidity control)

Vulnerable parts

Parts exposed to a high rate of accidental user breakage.

- **Structural assembly**
  - Door locking mechanism (latches)

- **Transport assembly**
  - Bumper(s)
  - Corner bumper(s)

- **Refrigeration assembly**
  - Evaporation tray
- **Heating assembly**
  - Water tank (for humidity control)
- **Electrical and electronic assembly**
  - Power supply cable

Consumable or maintenance parts

Consumable parts are those parts that need to be replaced more or less frequently, depending on the pattern of deterioration over the product's lifetime. Maintenance parts require regular servicing to keep the product in optimum working order.

- **Structural assembly**
  - Sealing gasket(s) (doors)
  - Filter(s)
  - Inner walls
- **Transport assembly**
  - Sealing gasket(s) (terminal/trolley interface)

V. CLASS OF REPARABILITY CRITERIA

1. Class system

The criteria in the "Repairability" family use a system of classes to prioritize the level of requirement for each type of part.
These classes range from A to E.
Class A represents best practice in reparability. The lower classes (B, C, up to D or E) reflect a decreasing level of relevance of practices, but should always be considered in relation to market practices.

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

2. Disassembly depth of parts

The dismantling step count starts when the safety conditions for the user are met. A step is an operation leading to the removal of a part or a tool change. Example:

- Remove cover by sliding with hand = 1 step
- Remove cover by unscrewing 4 Phillips screws = 1 step
- Remove cover by unscrewing 2 Phillips and 2 Torx screws = 2 steps

VI. EXPOSURE TO EXOGENOUS FAILURES

Definition

An 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 unforeseeable external circumstances (e.g. extreme environmental conditions, transport accidents, inappropriate handling by 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 due to these external factors.

Exogenous failure criteria

User risk:

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

- Low: the user scrupulously respects the product's rules of use, particularly for quality and safety reasons.
- Medium: the user generally respects the product's rules of use
- High: the user rarely respects the product's rules of use

Product handling:

Reflects the possibility of false handling, shocks, falls.
Associated levels :

- Low: Not handled
- Medium: Handling without moving or dismantling
- High: Handling with moving or dismantling

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 is powered but not performing any active task. It is in a state where it is not being used for specific functions and is not running any background operations.

- **Standby**: The appliance is in a low-power mode, with key components reduced to a minimum, but remains capable of maintaining certain functions or responding to user interactions.
- **Transport**: Applicable only to mobile equipment, this phase corresponds to movement between kitchens and service areas.
- **Heating**: The appliance is operational and actively performing tasks, consuming energy due to its active operation. This is the phase in which the appliance is most intensively used, employing all available functionalities to meet user needs.
- **In-service use**: This phase indicates high utilisation of the product in terms of movement, opening and closing, and handling more broadly.
- **Cleaning**: This phase involves regular maintenance to optimise performance and ensure long-term operation. It includes hygiene-related tasks as well as physical and software maintenance aimed at preventing issues and extending the appliance's lifespan.
- **Storage**: This phase refers to periods during which the appliance is not in active use and/or is kept in a storage environment.

Phase	User risk	Product handling	Weather exposure	Overall risk
Inactivity	MEDIUM	LOW	LOW	LOW
Standby	LOW	LOW	LOW	LOW
Transport	HIGH	HIGH	LOW	HIGH
Heating	LOW	MEDIUM	LOW	LOW
In-service use	HIGH	HIGH	LOW	HIGH
Cleaning	MEDIUM	HIGH	LOW	MEDIUM
Storage	MEDIUM	LOW	LOW	LOW

Assessment of the overall risk of exogenous failure:
MEDIUM

This product category is subject to a high risk of exogenous failure. The main exogenous failure risks for product are as follows:

- **Prolonged inactivity**
  - Storage in an insufficiently ventilated area, posing a risk of oxidation
  - Storage in an unsatisfactory state of cleanliness, indicating a risk of mold growth.
- **Transport**

- Mobility phase involving numerous risks of shocks, impacts, and vibrations for the entire product. Failure to comply with product safety requirements increases the risk.

- **Heating**
  - Risk of non-compliance with temperature guidelines for food introduced into the system or selection of an unsuitable program

- **In-service use**
  - During service, the product may be subject to periods of intensive use coupled with frequent movement, posing significant risks to the doors and structure.

- **Cleaning**
  - Risk of using cleaning methods that are not suitable for the products

VII. LABEL CRITERIA

Reliability

Conception

1. Stress resistance

T0 Criteria

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

Mode of proof : General mode of proof supplemented by a set of data appropriate to the sub-criteria, including the application of product-related test standards: (This list of proof methods is representative but not exhaustive. It is not required to have all these modes of proof in order to comply with the criteria; they are merely indications)

- *In-warranty and out-of-warranty failure rates: The product must demonstrate failure rates below the industry average.*
- *Accelerated life testing. As the duration of the test is limited, scientific and robust projection calculations (acceleration factor) are used to extrapolate the results to the product's maximum total lifetime, demonstrating resistance to stress above the market sector average.*
- *The methodologies used can be based on general standards, on mandatory standards linked to safety directives and including elements of resistance to stress in use, or on voluntary standards.*
  - *EN 45552: General method for assessing the durability of energy-related products*
  - *EN 60721 : Classification of environmental conditions*
  - *IEC 60605 : Reliability testing of equipment*
  - *IEC 61123 : Reliability testing - Compliance test plans for pass rate*
  - *EN 61124 : Reliability testing - Compliance test plans for constant failure rate and constant failure intensity*
  - *EN 61649: Weibull analysis*
  - *EN 62506: Accelerated product test methods.*

- *Instruments used for testing: all instruments used for testing must be calibrated and a valid calibration report must be available. Calibration must be carried out prior to testing. Calibrations must be traceable to national standards.*

❖ **Resistance to mechanical stress**

- Robustness of heating elements against wear
  - Stainless steel heating element or armored heating element suitable for professional use
  - Mechanical strength of the resistive wire
    - Tensile strength of at least 90 N/mm2 at 900 degrees Celsius
    - Breaking point at elongation starting at 27% of the sample size
    - Melting point from 1260°C

- Robustness of the electrical wire supplying power to the resistor
    - Operating temperature resistant to at least 180 degrees Celsius
- Structural rigidity and vibration tolerance of assemblies, subassemblies, and components
- Mechanical strength of the refrigeration unit
    - Compressor size adapted to the cabinet
    - Appropriate sizing of the heat exchanger in relation to the compressor
    - Reduction in the number of capacitor starts per hour; 6 to 10 cycles per hour
    - Absorption of compressor vibrations by springs or other systems that are not susceptible to oxidation
- Product design and selection of materials adapted to the risks of impact during mobilization
- Impact-resistant wheels or travel systems
- Power cable resistant to tensile stress, bending, shearing, and twisting

Mode of proof:

- *Compression strength tests on hoods: ISO 604, ISO 5893 type*
- *Impact resistance tests: DIN EN ISO 148-1 (Charpy), MIL-STD-810*
- *Impact puncture resistance tests: type ISO 6603-1:2000*
- *Connector strength tests: EN 60512 and IEC 6176 types*
- *Wheel strength tests: type EN 12527 and ISO 22878*
- *Bending tests on the power cable: type IEC 60227-2*

❖ **Resistance to thermal stress**

- Resistance to thermal cycles and overheating
    - Component sizing adapted to prolonged use conditions and repeated thermal cycles, particularly for critical components (relays, triacs, capacitors)
    - Thermal regulation (ventilation & cooling) and effective protection (ventilation, spacing, heat sink, etc.) of heat-sensitive components exposed to heat from the cavity.
    - Thermal sensors that preserve product integrity in the event of a sudden rise in temperature
    - Optimized thermal architecture of electronic boards:
        - Thermal decoupling and/or preventive shutdown
        - Use of heat sink
        - And/or use of a natural flow or motor fan cooling system
    - Presence of a thermal protection and cooling system for the compressor
    - Preventive or amperometric thermal protection of electric motors (rotor) using fuses, magnetothermal circuit breakers, and/or overload relays
    - Battery preservation during intensive use via BMS and power management
    - Aesthetic durability of materials and finishes when exposed to heating cycles

Mode of proof:

- *Characterization of parts and processes using technical data, wear and aging tests, or accelerated life testing such as ASAH*

- *Boundary condition tests (continuous operating time, electronic input characteristics such as voltage range)*

❖ **Resistance to electrical stress**

- Resistance to electrical surges and power grid fluctuations
  - EOS protection circuit or surge fuse
  - Protection of electrical and electronic components against the risks of electrostatic discharge
- Capacitor durability (continuous, start-up):
  - Class B minimum (10,000 hours)

Mode of proof:

- *EOS robustness tests: IEC-61000-4-5 type*
- *Electrostatic discharge resistance tests: IEC-61000-4-2 type*
- *The battery must be able to withstand a minimum of 300 charge cycles with at least 80% of the nominal capacity according to IEC 61960-3.*
- *Relays and contactors certified for a minimum of 200,000 cycles on the French electrical network. Temperature limiter certified for 20,000 cycles at 256 Vac/10A and 10,000 cycles at 256 Vac/16A. Regulatory compliance of capacitors by a third party (ENAC type). Characterization of processes and coatings by technical data, wear and aging tests.*

❖ **Resistance to sealing stress**

- Protection of components against intrusive bodies (dust, food residues)
  - Protecting motor turbines from clogging risks
  - High-quality motor turbine seal
- Waterproofing of electrical and electronic contacts ensured by product design or by design elements compatible with the objectives of promoting repairability
- Corrosion-resistant motor turbine bearing suitable for humid environments (ceramic type (RSL))
- Minimum IPX4 protection rating for products passing through the wash tunnel
- Protection of internal components against damage (dust, humidity, water splashes, etc.) with IP 20 protection rating

General mode of proof

❖ **Resistance to liquids, oxidation, and chemicals**

- Stainless steel containing at least 16% chromium
- Stainless steel turbine or fan blades
- Corrosion-resistant evaporator fins for refrigeration units
- Resistance of surfaces to recurrent cleaning and disinfection products, in particular exterior surfaces and surfaces exposed to food

Mode of proof: Certificate of origin and characterization AISI 304 stainless steel

Production

2. Production line

T0 Criteria

The manufacturer has the processes in place to control and maintain consistently high manufacturing and assembly quality during the production phase.

- The main site(s) involved in the production of the product is/are certified to an international quality management standard.
  - Site involved in the manufacture of the ISO 9001 control system
  - Site involved in the manufacture of ISO 9001 electronic cards
  - Site involved in the manufacture of ISO 9001 resistive elements
  - Site involved in the manufacture of the refrigerated circuit ISO 9001

Mode of proof: For companies with more than 250 employees and for subsystems identified in PSR (in the case of subcontracting), ISO9001 certification is in place, issued by an accredited 3rd party. If not, annual inspection demonstrating compliance with ISO 9001 principles by verification of quality procedures or equivalence with other certifications is needed.

3. Logistics

T0 Criteria

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

- 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.

- Handling and transport procedures
  - Specific handling procedures are defined and controlled to avoid any deterioration of the product during delivery, handling and transport.

- 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.

General mode of proof

4. Supply chain

T0 Criteria

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

- Particular attention will be paid to the following elements:
  - Relay (third-party quality certification required)
  - Capacitor (third-party quality certification required)
  - Thermostat (third-party quality certification required)
  - Electronic module(s) or card(s) (third-party quality certification required)
  - Resistance(s) (third-party quality certification required)
  - Compressor (third-party quality certification required)
  - Solenoid valve (third-party quality certification required))

Mode of proof: For companies with more than 250 employees and for subsystems identified in PSR (in the case of subcontracting), ISO9001 certification is in place, issued by an accredited 3rd party. If not, annual inspection demonstrating compliance with ISO 9001 principles by verification of quality procedures or equivalence with other certifications is needed.

Quality control

5. Reliability plan

T0 Criteria

The producer provides a history of product versions and identifies the changes implemented to improve product durability.

- 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.

Mode of proof: demonstration of quality management to the appointed inspection body during the on-site audit.

6. Breakthrough technology

T0 Criteria

The manufacturer provides information on the share of breakthrough technology embodied in the product, and identifies the functions associated with it. He demonstrates the reliability

of this technology, all the more so if it concerns a primary function. This applies to both hardware and software innovations.

General mode of proof

7. Breakdown rate

T1 Criteria

The producer tracks actual failure rates and/or indicators by product part in order to monitor product reliability at least until the last unit of the model concerned has been put on the market.

❖ Particular attention will be paid to failures in the following parts:

- Failure of thermal assemblies (cooling and heating units):
  - Resistance failure
  - Failure of ventilation in hot or cold enclosures (electric motor, bearing, power supply)
  - Refrigerated circuit failure
- Thermal regulation failure:
  - Faulty temperature sensor (CTN)
  - Faulty thermostat
- Electronic failure:
  - Faulty power card (capacitor, relay, Triac)
  - Faulty electronic control board
  - Display module or electronic card

General mode of proof

User information

8. Product identification

T0 Criteria

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

General mode of proof

9. Completeness of usage information

T0 Criteria

The manufacturer publishes a manual detailing the product's use and care instructions, and provides the user with a maintenance plan. This information, which is also available online, must be exhaustive and relevant in order to reduce exogenous failure rates and encourage responsible use.

- The manufacturer clearly informs the user of the scenario(s) of use that will enable the energy consumption of the electrical appliance to be reduced as much as possible and explains the differences in consumption between the different modes of operation if necessary (ready for use, deep standby, complete shutdown, etc.).

- The manufacturer provides a maintenance plan and emphasizes the need to maintain the cooling unit (cleaning, dusting, degreasing).

General mode of proof

10. Usage information format

T1 Criteria

The manufacturer publishes a clear, simple and accessible user and maintenance manual (font size, vocabulary, language and print quality), so that it can be easily understood by end-users.

- The service manual should be available for anyone to read, free of charge.

- Instructions on how to replace the battery must be available to anyone, free of charge, online for 10 years.

General mode of proof

11. Prolonged immobilization

T0 Criteria

The manufacturer identifies the risks of failure associated with prolonged product downtime. He informs the end user of the conditions of use necessary to prevent these risks.

- Applicable: Product family sensitive to non-use in case of prolonged immobilization.

Risk of oxidation in unsuitable storage areas and mold growth if cleaning procedures are not followed.

- Consistent duration of non-use: 1 month.

General mode of proof

Repairability

Technical repairability

12. Disassembly of parts

T0 Criteria

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

- Class A: ≤ 5 steps and less than 10 minutes
- Class B: between 5 and 10 steps and less than 15 minutes
- Class C: between 10 and 15 steps and less than 30 minutes
- Class D: more than 15 steps and more than 40 minutes

Types of parts	Class
Product housing	B
Functional	D
Priority	C
Vulnerable	B
Consumable	A

General mode of proof

13. Part fasteners and connectors

T0 Criteria

Fasteners and connectors have removability and reusability characteristics appropriate to the category of product parts. A system is in place for locating these non-visible fasteners.

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

Types of parts	Class
Product housing	A
Functional	B
Priority	B
Vulnerable	A
Consumable	A

❖ The fasteners for the various priority parts of the product that have both a mechanical and electrical function must be removable and reusable (Class A standard EN45554).If 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 mode of proof

14. Tools

T0 Criteria

The tools required for repair and/or disassembly must be suitable for the category of product parts.

- Class A: repairs feasible without the use of tools, with tools supplied or with General-purpose 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 parts	Class
Product housing	A
Functional	B
Priority	B
Vulnerable	A
Consumable	A

❖ Tolerance allowed for proprietary tools supplied or loaned on request, at no extra cost, with 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 mode of proof

15. Working environment

T0 Criteria

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

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

Types of parts	Class
Product housing	A
Functional	B
Priority	B
Vulnerable	A
Consumable	A

General mode of proof

16. Competence level

T1 Criteria

The level of technical skill required to carry out 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 parts	Class
Product housing	B
Functional	C
Priority	C
Vulnerable	B
Consumable	B

General mode of proof

17. Spare parts interface

T0 Criteria

The various parts of the product and their connection interfaces are standardized to meet 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 parts	Class
Product housing	B
Functional	B
Priority	B
Vulnerable	B
Consumable	B

- Part pairing practices are prohibited.
- Replacement parts need to be compatible from a technological specification perspective to function properly and it must not play a role if the part is new or reused and if it is from the original manufacturer or a 3rd party.

General mode of proof

Organizational reparability

18. Spare parts availability time

T0 Criteria

The availability time for spare parts is at least equal to the expected service life of the product category and its individual parts. The availability period is measured from the time the last unit of the model concerned is put on the market.

- Class A: Long-term accessibility - minimum 7 years
- Class B: Medium-term accessibility - between 3 and 7 years
- Class C: Accessibilité à court terme - maximum 3 years
- Class D: No information on duration of accessibility

Types of parts	Class
Product housing	A
Functional	A
Priority	A
Vulnerable	A
Consumable	A

❖ In the event that a replacement part is not available from the manufacturer or his distribution network, the manufacturer shall clearly provide the user, via the documentation made available to him, with the information and/or characteristics of the parts enabling him to use instead an adaptable or compatible replacement part available on the market for a period at least equal to that specified in the above table.

General mode of proof

19. Accessibility of spare parts to target audiences

T1 Criteria

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

- Class A: Accessible to end users
- 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 parts	Class
Product housing	A
Functional	B
Priority	B
Vulnerable	A

Types of parts	Class
Consumable	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 mode of proof

20. Terms and conditions for the sale of spare parts

T1 Criteria

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 items in the following categories:
  - Priority parts
  - Vulnerable parts
  - Consumable parts

General mode of proof

21. Spare parts prices

T1 Criteria

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.

- Maximum percentage of the price of one of the parts in relation to the price of the product : 25%.

- The manufacturer studies and clearly proposes to the user, through the information medium of his choice, repair scenarios enabling repair costs to be limited to 30%, including VAT, potential shipping costs, spare part and working time of repairer.
  These scenarios apply in the event of the failure of a single part.

General mode of proof

22. Shipping costs for spare parts

T1 Criteria

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.

General mode of proof

23. Spare parts delivery times

T1 Criteria

The manufacturer demonstrates its ability to supply spare parts to interested parties within 5 working days.

General mode of proof

24. Documentation of failure scenarios

T1 Criteria

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	Time to availability
Disassembly diagrams, reassembly diagrams if necessary, or exploded views	A	10 years
Wiring and connection diagrams	B	10 years
Electronic circuit diagrams	C	10 years
Instructions for replacing the battery and consumables	A	10 years
A technical manual with instructions for resolving failure scenarios	B	10 years
A list of necessary repair and testing equipment	B	10 years
Information about components and diagnostics (such as minimum and maximum theoretical values for measurements)	B	10 years
Error and diagnostic codes	A	10 years
Software instructions, including reset	B	10 years
Access to incidents reported and recorded in the equipment	B	10 years
Technical bulletins	B	10 years
Instructions on how to contact customer service and specific contacts associated with it	A	10 years
Information on the price of spare parts	A	10 years

General mode of proof

25. Support for fault diagnosis

T0 Criteria

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

❖ Class A :
Diagnostic support system with intuitive or coded interface and public access to the reference table.
OR
The sales website of the product's manufacturer or distribution partners features a fault-tree diagnostic interface.

❖ Class X : Remote diagnostic and/or repair assistance is available

General mode of proof

Scalability

26. Reset settings and passwords

T0 Criteria

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 : Factory settings can be restored via a built-in function.

General mode of proof

27. Software

T0 Criteria

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 availability time for updates is 8 years for products equipped with IOT functionalities.

General mode of proof

Quality of after-sales service

28. Internal failure resolution policy

T1 Criteria

In the event of product failure, the manufacturer 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 mode of proof

29. Service contact

T1 Criteria

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.

❖ Given the type of product family, the maximum lead time is 24 hours.

General mode of proof

30. Return services

T0 Criteria

The manufacturer 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 mode of proof

31. Return condition

T0 Criteria

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.

General mode of proof

32. Useful product

T1 Criteria

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.

- Applicable

General mode of proof

33. Warranty time

T0 Criteria

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

General mode of proof

34. Warranty exclusions

T0 Criteria

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-scratches
- Dust marks

General mode of proof

Lifecycle

Sustainability

By having a type 1 ecolabel certification for its product, the manufacturer automatically validates compliance with all the Life cycle category criteria.

Mode of proof: Type 1 certification to ISO 14024 from the list below

- *EPEAT*
- *Blue Angel*
- *Eco-rating*
- *Ecolabel Européen*

35. Health, safety and environmental protection

T0 Criteria

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.

- Respect à minima des principes du Règlement (UE) 2015/1095 portant application de la directive 2009/125/CE concernant les exigences d'écoconception applicables aux armoires frigorifiques professionnelles, aux cellules de refroidissement et de congélation rapides, aux groupes de condensation et aux refroidisseurs industriels.

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.

General mode of proof

- For large companies (more than 5,000 employees), the main site(s) involved in the production of the product has/have certification linked to an international environmental management standard.

Mode of proof: ISO 14001 certification issued by an accredited third-party inspection body.

- Food safety certificate for parts likely to come into contact with food and alloy suitable for food contact (AISI 304 or 441 stainless steel)

- Use of plastic compatible with food industry applications

Mode of proof: Compliance with the design rules of Agreement AC D 40-006

- In order to reduce the impact of the manufacturing phase, the manufacturer implements at least two of the following three features:
  - The site responsible for producing the refrigerant gas has third-party quality certification related to environmental management, such as ISO 14001 or ISO 9001, supplemented by an environmental management system (EMS).
  - The site responsible for the "foundry" phase has third-party quality certification related to environmental management, such as ISO 14001.
  - The metal parts, particularly the chassis and external cladding, are made from recycled material comprising at least:
    - 17% for steels
    - 28% for stainless steel
    - 80% for aluminum

Mode of proof: Third-party quality certification demonstrating the environmental friendliness of the paints used, in accordance with recognized testing standards. Certificate of origin for the materials used in the frame and cladding panels.

- During the manufacturing phase, paints and other coating products are water-based or bio-based. Where applicable, the site responsible for the "coating and painting" phase has third-party quality certification related to environmental management, such as ISO 14001.

Mode of proof: Composition and characterization of paints. Third-party quality certification demonstrating the environmental friendliness of the paints used, in accordance with recognized testing standards. Certificate of origin for the materials used in the structure's composition.

- Fair mined material and/or recycled material : The characteristics of the product and the manufacturer's practices result in a minimum **class D** among the classes listed below.
  - Class A : 40% minimum of weight
  - Class B : 35% minimum of weight
  - Class C : 30% minimum of weight
  - Class D : 25% minimum of weight
  - Class E : 20% minimum of weight
  - Class F : <20% minimum of weight

Mode of proof: proof of origin of materials used to make the product

- Polymers containing flame retardants are banned or are drastically restricted and subject to consistent technical justification.

General mode of proof (Reach and/or ROHS)

- Life Cycle Assessment (LCA) : The characteristics of the product and the manufacturer's practices result in a minimum **class D** among the classes listed below.

Requirements	Class					
	A	B	C	D	E	F
The product's LCA is critically reviewed by a third party. The review report must include at least : - The number of years of experience in the field of LCA/PCF - Number of carbon footprints reviewed - Number of carbon footprints completed	x					
The product LCA is based on the specific product mode.	x	x				
The product LCA is based on the product's family of models, but not the specific product model			x	x	x	
The full LCA report including all assumptions is publicly available and based at least partially based on real material data (Full Material Declarations)	x	x	x			
Concrete actions are taken to reduce the impact of the most impacting phase(s) of the life cycle	x	x	x	x		

Mode of proof: LCA report produced by a qualified consultancy.

- The batteries comply with the limit values set by European Directive 2006/66/EC. The limit values for batteries are 0.0005% for mercury, 0.002% for cadmium, and 0.004% for lead per listed cell.

Mode of proof: for product groups and geographic distribution sectors potentially covered by regulatory prerogatives establishing requirements for limiting the use of certain hazardous substances in electrical and electronic equipment, proof of compliance with these regulatory requirements will be used as evidence in meeting the SPRs of this criterion where necessary.

36. Energy and/or environmental performance

T0 Criteria

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.

General mode of proof

- The appliances use a refrigerant with a Global Warming Potential (GWP) of less than 150.

- To reduce energy consumption, the temperature setpoints are displayed in units easily understood by the end user, and adjustments are made in increments of between 0.5 and 1 degree maximum

Mode of proof: Eco-design measures assessed by the authorised inspection body during the audit, supplemented by documentation and technical specifications referred to in Article 12(5) of Regulation (EU) 2017/1369, as listed in the European Commission's product compliance database.

- Each final assembly plant manufacturing the product, where annual energy consumption exceeds 1 GWh, is ISO 50001 certified.

Mode of proof: Third-party ISO 50001 certification.

37. Equipment end-of-life management

T0 Criteria

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.

- Identification of the materials of product parts that are mainly made of plastic and weigh more than 5 grams.

Mode of proof: compliance with ISO 11469 and ISO 1043-1-2-3-4 standards.

- Accessibility and separability of refrigeration unit components (compressor, evaporator, condenser and expansion valve). Foam overmoulding techniques are prohibited

- In order to facilitate the reuse of materials, the manufacturer provides detailed markings identifying the specifications of the polymers and/or polymer blends used in the manufacture of the product.

General mode of proof

- 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

T1 Criteria

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:

- At least 95% of the weight of packaging waste consists of recycled and/or recyclable and/or reusable materials
- Manual separability of non-reusable and non-valorizable packaging components weighing more than 25 grams in a single component
- Product packaging must not contain lead (Pb), cadmium (Cd), mercury (Hg) or hexavalent chromium (Cr6).
- Plastic packaging material must not contain halogens bound to organic substances

Mode of proof: Composition and characterization of packaging.

VIII. TERMS, DEFINITIONS, CLARIFICATIONS

Depending on the sector, specific definitions for different product categories (parts, functions, etc.) may be added to the recurring definitions below.

Actual failure
Failure that is effectively linked to a malfunction of the product and not to an exogenous problem (e.g. unpowered socket, incorrectly connected power cable, poorly locked lid, etc.).

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

After-sales service file
An After Sales Service File is a record documenting the handling of a customer request or issue following the purchase of a product. It includes all relevant information about the customer interaction, the issue reported, steps taken to resolve it, and any communication between the customer and the company. In cases where customer support teams manage the initial contact, the file may be passed on to the after-sales service team for further handling when needed, ensuring that all necessary actions are taken to resolve the issue.

The response time for handling such requests does not exceed an average of duration described in criteria 29. There may be flexibility for periods of high demand (e.g., during product launches or holidays) that are justifiable in relation to market practices.

An automated email confirming receipt of the request is not considered sufficient for compliance to criteria 29.

AMDEC / FMEA
Tools for Failure Mode and Effect Analysis / Analyse des Modes de Défaillance, de leurs Effets et de leur Criticité.

Breakthrough technology
A technology that introduces a major advance over existing solutions or practices. It is distinguished by its significant impact on performance, functionality or efficiency, and can change standards or redefine an industry. Unlike incremental improvements, a breakthrough technology often disrupts the market or the field of application, offering substantial benefits or opening up new possibilities. This can apply to both hardware and software innovations.

Circular economy part (CEP)
PIEC are second-hand goods within the meaning of art. L. 321-1 of the French Commercial Code, and cannot be universally defined, but are defined on a case-by-case, sector-by-sector basis.
For the time being, CEIPs are defined in consumer law for the following sectors: automobiles, household appliances, electronics, motorized DIY and gardening tools, sports and leisure equipment and motorized personal transport devices.

For household electrical and electronic equipment, art. R. 224-30 code de la consommation states: "For the application of article L. 224-109, parts from the circular economy are understood to be components and elements resulting from an operation of preparation with a view to their reuse" where article 541.1.1 defines "preparation with a view to reuse" as any operation of control, cleaning or repair with a view to recovery by which substances, materials or products that have become waste are prepared in such a way as to be reused without any further operation.

Competence level

Solving a failure scenario may require skills such as the ability to identify and locate the failure, access the affected area in the product, handle the appropriate tools, and manage any risks associated with the product, the environment and the operator. Depending on the level of technical skill required to carry out the repair, several levels are defined:

- **Novice:** When no specific repair experience or qualifications are required to carry out the failure scenario resolution process.

- **Generalist:** When the resolution of a scenario is not achievable by a novice, but can be achieved by a person with general knowledge of basic repair techniques and necessary safety measures

- **Expert:** When a scenario cannot be solved by a novice or generalist, but can be solved by people with specific expertise or experience related to the product group in question.

- **Manufacturer:** When the resolution of a scenario is not feasible by a novice, generalist or expert, but can be performed by the manufacturer or a person specifically trained and accredited by the manufacturer.

- **Unfeasible:** When a scenario cannot be solved by any of the defined profiles.

Compostable packaging

Container designed with materials capable of decomposing naturally under the action of micro-organisms present in the composter to become a natural or organic component of the substrate.

Corrective update :

A corrective software update is a modification or set of modifications made to a software or operating system or functionality in order to correct defects, errors or malfunctions identified after it has been put into service. These corrections aim to restore or improve the correct operation of the product or system without introducing major new functionalities. It may include corrections relating to :

- Technical errors (bugs) in software
- Design errors or user biases
- Security flaws identified after deployment

This type of update is often distinct from an evolutionary update (which adds functionality) or a preventive update (which aims to anticipate future problems).

Criticality
The criticality of a failure refers to the importance or impact of this failure on the correct operation of a product. It is assessed on the basis of the severity of the consequences the failure could have, particularly in terms of safety/costs, and the frequency of occurrence.

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

Disassembly depth
Corresponds to the sum of the steps required to access each part individually and to separate it from the equipment, with a view to its replacement.

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

EOS
An acronym for Electrical Overstress, meaning an undesirable state of electrical overload that could lead to product damage or failure.

Expected service life
Period during which the user expects the product to perform as intended.This expected lifetime is defined on the basis of scientific literature and/or consumer surveys. When the data is not available or is insufficiently robust, the expected lifetime is defined by the author of the standard, based on the expertise of the LONGTIME® teams and its network.

Experienced tools
Tools that require skill to use and whose cost can be a barrier (torque wrench, soldering iron, etc.).

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

Fair Mined Material
Fair Mined Material refers to raw materials used in the device for which the manufacturer can credibly demonstrate active efforts to improve at least one of the following aspects during the extraction stage: working conditions, workers' income, or environmental protection. This means that the manufacturer is committed to ethical practices by ensuring better labor conditions, fair compensation for workers, and/or implementing measures to minimize environmental impact in the sourcing of these materials.

Full Material Declarations
Full Material Declarations (FMD) in the context of a Product Life Cycle Assessment (LCA) refer to comprehensive and detailed disclosures of all materials and substances used in a product. This includes a complete list of every material, chemical, and component that makes up the product, along with relevant information about their quantities, sources, and potential environmental or health impacts.

General-purpose tools
Common, general-purpose tools available to the general public in standard distribution and as specified in the EN 45554 tool list: screwdrivers (slotted head, cross-head, 6-lobe internal screws), wrenches (hexagon socket, combination wrenches), pliers (universal, half-round nose, diagonal cutting, multi-socket, vice, for stripping and crimping terminals), pry bar, tweezers, steel-headed hammer, universal knife (cutting pliers with retractable blade), multimeter, voltage tester, soldering iron, glue gun, magnifying glass.

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

HS
Out of order; corresponds to the end of the functional state.

IOT
Internet of Things; this function refers to the ability to connect a product to the Internet for additional remote control and/or regulation functions.

Manual
Comprehensive guide or instructional resource that provides detailed information on how to use, operate, maintain, or assemble a product, system, or process. It can take various forms, including printed booklets, digital documents (such as PDFs), illustrated tutorials, or video instructions. Its purpose is to offer clear, step-by-step guidance to users, ensuring they can correctly and efficiently engage with the product or service it accompanies.

No use
Corresponds to a state of non-operation of the device.

Non-recyclable packaging
Packaging that cannot be effectively recovered, recycled or reused after use.

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

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

Permanent assembly
This is an assembly of components forming a single part or component of a product, which cannot be disassembled without destroying or altering its intended use.
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, gluing and adhesives.

Primary data or information
Information directly measured or collected by the professional in one or more installations representative of the professional's activities.

Product/part unit cost price (PRU)
Understood as the sum of the price of the parts making up a product/of the components of a part.

Professional tools
Tools requiring special knowledge or conditions of use, and whose acquisition cost represents an investment.

Professional user
Means any natural or legal person, to whom a product has been made available for use in the course
of their industrial or professional activities

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

PSR
"Product Specific Requirement, corresponds to the criterion specifications applicable to the types of equipment specified within the scope of the standard.

Reconditioned part
A second-hand product or spare part, within the meaning of Article L. 321-1 of the French Commercial Code, may be qualified as a "reconditioned product" or be accompanied by the term "reconditioned", provided the following conditions are met:

- The product or spare part has undergone tests on all its functionalities in order to establish that it complies with legal safety requirements and the use to which the consumer can legitimately expect it to be put.
- If necessary, the product or spare part has undergone one or more operations to restore its functionality. This intervention includes the deletion of all data recorded or stored in connection with a previous use or a previous user, before the product or part changes ownership."

Recyclable material or product
A recyclable material or product is one whose characteristics allow it to be diverted from the waste stream through available collection and processing systems, enabling its reintegration as raw material or a new product (based on ISO 14021).
A recycled material or product is manufactured entirely or partially from materials that have been recovered after initial use and subjected to a transformation process—mechanical, chemical, or other—to be reintroduced into the production chain.

Recycling excludes the direct reuse of products or components without prior transformation and aims to reduce the consumption of virgin raw materials.

Regular maintenance
Maintenance recommended by the manufacturer to keep the product in optimum working order.

Removable fastener
Corresponds to an original fastening system which can be removed during disassembly without damaging the product, but which cannot be reused during reassembly (e.g. plastic clamp, rivet).

Replacement or spare part
A replacement part is a separate part intended to replace a defective or degraded part having the same or a similar function of a good in operation; (Source: Annexes to the European Regulations laying down ecodesign requirements in accordance with Directive 2009/125/EC).

Return conditions for a repair process

- Complete returns conditions: special arrangements are in place to encourage the return of the product for a repair process, whether to the manufacturer, a partner or a repairer: free shipping, home pick-up, free replacement product during the repair process, free repair. These special arrangements are available both under warranty and out-of-warranty.
- Basic return conditions: users wishing to repair their product have the option of returning it for repair, but there are no special arrangements in place to facilitate this process (charges, etc.).
- No return solution: the end-user has no way of returning the product to the manufacturer or one of its partners for repair.

Reusable packaging
Container designed to be used over and over again, reducing the need for disposable packaging.

Reusable fastener
Corresponds to an original fastening system removed during disassembly without altering the product, and which can be reused during reassembly (e.g. screws, clips).

Reused parts
To date, there is no official definition of "re-use parts", but a definition of "re-use" provided in Article L. 541-1-1 of the French Environment Code, which defines it as follows:
Reuse: "an operation by which products or components that are not waste, are used again for a use identical to that for which they were designed".

Selling price of a spare part
Deduction of delivery costs: The principle adopted is to calculate without including transport or delivery costs. If these costs are included in the pricing of the general sales conditions, it is the responsibility of the producer or importer to deduct them for the calculation of the ratio. Specifically, for the price of spare parts, two methods are possible for deducting transport or delivery costs: individually for each part on list 2 or as a flat rate (in absolute value or as a percentage). The same applies to the price of new equipment.

Spare part(s) included in a set: If one or more parts are included in a set offered for sale or any other inseparable sub-assembly of parts, the price of the relevant part is the price of that sub-assembly.

Parts not managed by the producer or importer: If parts from list 2 are not managed by the producer or importer, the price of the parts to be considered is the price listed in the supplier's general sales conditions at the time of the index calculation.

Product options with the same reference: If options are offered for the same reference and do not affect the technical characteristics, then the price ratio calculation should be based on the price of the spare parts and the price of the most common version of the product concerned.

Criterion 21 is established by calculating the ratio between: the ex-tax price of the spare part and the ex-tax price of the relevant equipment model, where each price is understood as the ex-tax price from the current price list at the time of the certification process and listed in the general sales conditions of the manufacturer or importer, or in any other relevant contractual document if not available.

If a manufacturer or importer has, for the parts or equipment concerned, several price lists depending on the different categories of distributors or sellers, the prices used for the index calculation are those from the price list that accounted for the highest share of the manufacturer’s or importer’s turnover for the type of parts or equipment concerned during the last closed fiscal year.

Serialization
Practice by which the manufacturer limits the use of spare parts to only those original parts that it approves, in particular by means of software.
Example: associating the serial numbers of a product's components with the product's overall serial number.

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

Spare parts interface

Refers to the way in which parts connect or integrate with the existing components of a product. Depending on the type of part and the type of interface used to connect them, a classification is established: A standard part is a component, a part, manufactured to recognized specifications and standards, commonly used and compatible with various products or systems.

- **Standard part with standard interface:** Designates a standard part, manufactured according to recognized specifications and standards, commonly used and compatible with various products or systems, and whose connection or interaction with other components, devices or systems is based on standardized or widely used and accepted specifications.
- **Standard part with proprietary interface:** Refers to a standard part, manufactured according to recognized specifications and standards, commonly used and compatible with various products or systems, and whose connection or interaction with other components, devices or systems is based on specifications specific to a particular manufacturer or company.
- **Proprietary part with non-standard interface:** Refers to a non-standard part, exclusive to a product or company, usually produced in-house or under license. This type of part may have unique specifications that make it incompatible with other products or brands. In addition, it may be designed with a specific connection to other components, devices or systems, also based on specifications specific to a particular manufacturer or company.

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

Sub-assembly
A set of inseparably connected components that form a block and perform a function. The sub-assembly may be separate from the product.
Example: Soldered motor and electronic board

Usage stress
This corresponds to the forces applied to the part.

Used parts
Used goods are goods which, at any stage of production or distribution, have 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 have undergone alterations which do not allow them to be offered for sale as new (Source: Article L321-1 of the French Commercial Code).

Waste
Any substance or object, or more generally any movable asset, which the holder discards or intends or is required to discard. (Source: Directive n°2008/98/CE of November 19, 2008 on waste)

Working environment
When solving failure scenarios, a number of different working environments can be identified.

- **Operating environment:** Corresponds to the environment in which the product is used and does not express any specific requirements relating to the working environment for the resolution of failure scenarios.
- **Workshop environment:** Corresponds to an environment which does not require a production environment (class C), but where failure resolution scenarios cannot be carried out in the operating environment.
- **Production environment:** Corresponds to an environment necessary for the resolution of failure scenarios which is comparable to that in which the product was manufactured.

IX. BIBLIOGRAPHICAL RESOURCES

This paragraph lists the main bibliographical resources used to draw up the sector reference guide, which are likely to evolve according to the target product groups.

Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

Directive 2014/30/EU of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (EMC Directive)

Directive 2014/35/EU of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits (Low Voltage Directive – LVD)

Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Directive 2012/19/EU on waste electrical and electronic equipment (WEEE Directive)

Commission Delegated Regulation (EU) 2019/2015 supplementing Regulation (EU) 2017/1369 with regard to energy labelling of light sources and repealing Delegated Regulation (EU) No 874/2012

NF EN 60335-1 COMPIL 15 Household and similar electrical appliances – Safety – Part 1: General requirements

EN 60384-14 Fixed capacitors for use in electronic equipment – Part 14: Sectional specification – Fixed capacitors for electromagnetic interference suppression and connection to the supply mains

EN 45552 General method for the assessment of the durability of energy-related products

EN 45554 General methods for the assessment of the ability to repair, reuse and upgrade energy-related products

X. 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
Standard V2_Food Regeneration and Holding System	06/2025	Editing the final version of the V reference framework2	F.Preguesuelo

Draft_ Standard V2_Food Regeneration and Holding System	11/2024	Aggregation of fixed, mobile, and electric furnace systems with consultation	F.Preguesuelo
Sectoral Annex V1_Mobile temperature maintenance and restoration system	09/2022	Editing of the final version of the Sectoral Annex	F.Preguesuelo
Sectoral Annex V1_Electric holding or reheating oven	09/2022	Editing of the final version of the Sectoral Annex	F.Preguesuelo
Sectoral Annex V1_Fixed temperature maintenance and restoration system	09/2022	Editing of the final version of the Sectoral Annex	F.Preguesuelo
Sectoral Annex V1_Fixed temperature maintenance and restoration system	04/2022	Start of the drafting and consultation process for the Sectoral Annex	F.Preguesuelo
Draft_Sectoral Annex V1_Electric holding or reheating oven	04/2022	Start of the drafting and consultation process for the Sectoral Annex	F.Preguesuelo
Draft_Sectoral Annex V1_Fixed temperature maintenance and restoration system	02/2022	Start of the drafting and consultation process for the Sectoral Annex	F.Preguesuelo

XI. ACKNOWLEDGEMENTS

The Ethikis cooperative, responsible for drafting this sectoral annex, would like to extend its special thanks to the many professionals who took the time to respond to our requests, in particular the various local authorities and their catering services, as well as the various manufacturers and technicians.