LONGTIME®

CERTIFICATION STANDARDS

Electric Oven

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I. INTRODUCTION

Based on the standards of the EN 45550 series and in coherence with the EN 45552 and EN 45554 standards, the LONGTIME® specific reference documents specify the elements relating to the study of the robustness, reliability and reparability of the associated product family.
All the qualitative, semi-quantitative or quantitative data are the result of a research and consultation process, as required by the standards in force, and take into account the bibliographical references (scientific studies, regulations, standards, etc.) and all the stakeholders involved.) and all stakeholders, namely: 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 all stakeholders who can contribute, subject to added value and the availability of networks and information.
The definition of the pre-requisites in terms of quality, energy threshold, emission thresholds, classification of the parts as well as the definition of the thresholds of the scales are the result of the analysis of the consultations carried out and the taking into account of the best eco-design practices available on the market.
The specific LONGTIME® standards are revised at the latest every 3 years.

LONGTIME®'s vision

This project is part of a dynamic societal movement with the desire to go ahead of the regulations. This label is made by citizens, for citizens. It brings the certainty that the product bearing the label is made for a long term use, as 80% of the consumers wish and that it is economically repairable.
LONGTIME® is a simple, strong and efficient tool, created to inform the consumer concerned about the global impact of his purchases, but also the consumer who wants to acquire a product with a fair longevity/price ratio. It also tends to put on the front of the stage the manufacturers anxious to propose products whose lifespan is optimized.

Label's goals

The aim of this approach is to encourage a different type of consumption, thus aiming to produce differently. Almost all citizens want a transformation of the consumer society with a real change of technical and economic paradigm in order to consume better and more sustainably.
The ecological interest is of course major, we have multiplied in a few decades our consumption of raw materials to exceed today, 60 billion tons per year. The label influences the preservation of planetary resources, by a better use of them and the reduction of waste.
In an intuitive way, getting a good with a longer life span limits the use of our planet's resources, reduces over-consumption and allows to get out of the disposable and wasteful way. It is not a question of looking for "immortal" products but of fighting against the short life span of products.

Extending the lifespan of an electric oven by a few years can reduce the results of indicators in categories of life cycle impacts that depend mainly on the production phase, upstream of use.
In the other impact categories, the benefit of extending the life cycle depends largely on the energy efficiency of the replacement product. Replacing a furnace early (10 years) can be environmentally beneficial if it has an energy efficiency improvement of between 5 and 25% compared to the previous product.Scope of application
The label is applicable to different product families as soon as there is an assembly of parts. LONGTIME® tends to cover domestic appliances, electronics, portable electrical appliances, furniture, leisure equipment, professional equipment... The range of products is therefore very wide but excludes the automobile, textile products (except leather goods), food, cosmetics and chemicals.

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Organization of the repository

The criteria are broken down into several categories and each criteria presentation follows the following scheme:

Criteria category

Number and name of the criteria

Requirement level (KO,Major,Minor)

Cross-cuting criteria

❖ Product Specific Requirement (PSR)

Mean of proof

The criteria are classified on several levels of requirement:

KO	These criteria must be met in order to qualify for the label after the initial audit (year N).
Major	These criteria must be met at least 80% during the audit. They will lead to the implementation of corrective actions to reach 100% in year N+1.
Minor	These criteria must be met at least 50% of the time during the audit. They will lead to the implementation of corrective actions to reach 80% in year N+1 and 100% in year N+2.

Control system

The evaluation of the respect of the criteria of the standard is carried out by an approved and independent control body.
Each criterion is evaluated according to a compliant/non-compliant approach
More details on the control system in the labeling process are available on the LONGTIME® labeling conditions online : 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.

II. Definition of the product scope

Built-in domestic electric ovens are defined in this standard as built-in kitchen appliances (as opposed to free-standing), not pressurized, electrically powered only and intended to make culinary preparations by processing liquid or solid ingredients.
Domestic electric ovens belong to the class of large household appliances known as GEM. The present standard is dedicated only to domestic electric ovens included in the product scope II.1.

1. Product scope

- Built-in electric ovens with catalytic walls
- Built-in electric ovens with pyrolytic walls
- Built-in electric ovens with secondary steam function

2. Outside product scope

- Furnaces using energy sources other than electricity
- Ovens offering a "microwave heating" function
- Ovens heated primarily by a steam function
- Ovens with heat storage
- Small size ovens and portable ovens
- Professional or service industry electric ovens

In the rest of the standard and for reasons of simplification, the name "household will be replaced by « oven".

III. Terms and definition

Criticality
Degrees of resolution of the failure. Apprehended here by the detection (diagnosis and localization) and the severity (price of the parts and/or technical difficulty of the repair) of the breakdown.

Electrodomestic
Product running on electrical energy and intended for domestic use only.

« Experienced public » tools
Tools requiring skills for their use and whose cost can represent a brake (torque wrench, soldering
iron...).

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

FMEA
Tools for Failure Mode, Effects and Criticality Analysis.

« General public » tools
Common tools, for general use, available to any public in classic distribution.
cf: EN 45554 standard tool list - screwdriver for slotted head, crosshead or internal 6-lobe screws, wrench for hexagon socket screws, combination wrench, universal pliers, half-round nose pliers, diagonal cutting pliers, multi-socket pliers, vice grip pliers, universal terminal stripping and crimping pliers, lever, tweezers, steel-headed hammer, universal knife (cutting pliers with retractable blade), multimeter, voltage tester, soldering iron, glue gun, magnifying glass.

IOT
Internet of Things; this function corresponds to the fact of being able to connect its product to the Internet in order to obtain additional remote control and/or regulation functions.

Microwave heating
Heating of food by electromagnetic energy; (COMMISSION REGULATION (EU) No 65/2014 of 1 October 2013)

Muffle
Cavity located inside the electric oven.

Non-proven technology

Whose operation brings an innovation compared to the previous technologies and whose reliability is not proven.

Not in use
It corresponds to a state of non-operation of the device.

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

Out of service
Corresponds to the break of the functional state.

Permanent assembly
It is a set of components forming a single part or part of a product that 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. Example of permanent assembly techniques: welding, crimping, clinching, stamping, gluing and adhesives.

Portable oven
An oven with a total mass of less than 18 kilograms, provided that it is not designed for built-in installations; (COMMISSION REGULATION (EU) No 65/2014 of 1 October 2013)

Product of "great use"
Product of very frequent use and which in case of failure causes
A significant disruption in the management of daily life: refrigerator, washing machine, boiler / water heater, telephone, computer, stove...

Disassembly depth
Corresponds to the sum of the steps allowing, for each part to access this part individually and to disassemble it from the equipment, in order to replace it, constitutes the disassembly depth.

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

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

Routine maintenance

Maintenance recommended by the manufacturer to keep the product in optimal working condition.

Serialization
Practice by which the producer limits the use of spare parts to original parts approved by the manufacturer by a software means.
Example: associate the serial numbers of the components of a product to the global serial number of the product.

Small furnace
Oven with all cavities less than 250 mm wide and deep or less than 120 mm high; (COMMISSION REGULATION (EU) No 65/2014 of October 1, 2013).

Step
Operation leading to the removal of a part, fixture(s) or a tool change.

Sub-assembly
A set of inseparably connected components that form a block and perform a function. The sub-assembly can be separated from the product.

Usage constraint
It corresponds to the forces that apply to the part.

IV. Priorisation by categories of parties

List of parts and prioritization representative of the target product group but not exhaustive.

1. Covering parts

Includes all of the product trim parts, such as covers, to protect the internal components from the outside.

- Oven Body Assembly:
  - Frame
  - Stand, support, base
  - Feet
  - Faceplate
  - Control panel
  - Hood, covers (side, top) ‣ Side supports
  - Cover panels (rear, side)

2. Functional parts

Parts related to the operation or use of the product.

- Electronic electrical assembly

- Operating system
- Software, Firmware
- IOT module
- Triac
- Interference filter ‣ Wiring
- Electrical terminal block

- Display and control unit
  - Analog or digital display
  - Backlight units
  - Control button (mechanical, tactile, touch-sensitive)
  - Program selector, programmer, switch ‣ Timer

- Oven door assembly
  - Oven door structure ‣ Smoke deflector
  - Door handle
  - Glass holder
  - Door hinge
  - Hinge guide

- Cavity assembly
  - Spindle
  - Spit electric motor
  - Lamp holder
  - Thermal insulation materials or heat insulating element

3. Priority parts

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

- Electronic electrical assembly
  - Electronic display board
  - Electronic control board
  - Power electronic board or motherboard
  - Program selector switch
  - Starting capacitor linked to the motor fans
  - Resistance relay
- Cavity assembly
  - Pyrolytic muffle (tolerance allowed)
  - Catalytic wall
  - Tangential cooling fan motor

- Oven door assembly
  - Door latch (electronic or electromechanical)

- Resistor assembly

- Lower resistor or base
- Upper resistor or vault
- Bottom or circular resistor
- Rotating heat, pulsating motor fan (electric motor, propellers/poles,
- bearings)

4. Security features

Regroups all the active and passive parts necessary to protect against risks related to the use of the product.

- Electromechanical safety thermostat (Klixon type)
- Thermal fuses (electric motor, drive mechanism...) Position or safety sensor or contactors (Hall effect sensor, microswitch...)
- Temperature sensor (NTC type)
- Manual locking system (pyrolysis locking mechanism) Electronic locking system (switch, position contactor)

5. Vulnerable parts

Parts exposed to a high user accidental breakage rate.

- Glass (int/ext)

6. Esthetic parts

Aesthetic parts that do not interfere with the operation of the product.

- Not identified according to the definition of the LONGTIME® standard.

7. Consumable parts

Parts intended to be replaced, subject to wear and tear during use of the device.

- Light bulb

8. Maintenance parts

Parts requiring maintenance at regular intervals recommended in order to keep the product in optimal working condition.

- Muffle
- Cooking accessory
- Door seal

9. Accessories

Elements that are useful for the functioning of an object without being part of it.

- Grill(s)
- Pan drip tray
- Grid slide(s)
- Telescopic rail(s)
- Smartphone application

V. Accessibility scales

The accessibility scale has 3 levels and aggregates data related to repairability, including

- The depth of disassembly of the part in number of steps
- Disassembly time in minutes
- The level of skill required to accomplish the task
- The tools required for the process

A	≤ 3 steps | ≤ 10 min | every user | general public tools
B	≤ 15 steps | ≤ 15 min | experienced user or repairer | tools for the general public, tools for the experienced public
C	≤ 15 steps | ≤ 20 min | experienced user or repairer | tools for the general public, tools for the experienced public, professional tools

The ranges shown in the table above are orders of magnitude that should not be exceeded, but the thresholds can be more precisely defined in the criteria calling for the ranges.

The step count starts when the furnace is removed from its housing and disconnected from the mains.

VI. Eligibility

Commitment of the candidate

The applicant's eligibility for quality certification must be consistent with its existing values and strategies.

The company has not been accused or found responsible (information / material evidence, subpoena) for ethical violations, commercial practices clearly contrary to quality and ethics (practice of programmed obsolescence, industrial espionage, tax fraud) or major environmental during the last 10 years or considerable and adapted efforts have been put in place to: repair the damage caused, avoid its recurrence, reduce its impacts.

The manufacturer has all the necessary rights on the products and is the only holder of the property rights of any kind on the products including in particular as regards the drawings and models, patents and marks relating to it.

The products are not subject to any dispute of any kind from any third party.

The products are not likely to offend public order or morality, to provoke protests from third parties, or to contravene legal provisions in force.

For the marketing of products, the manufacturer agrees to its obligations and strictly complies with all legal provisions (directives, regulations, standards, laws) relating to the protection of human health, safety and environmental protection in force in the geographical areas of distribution of the products and in relation to its product categories. For the European Economic Area, the products must thus obey the European legislation and be in conformity with the "CE" marking for the products concerned.

VII. Label criteria

1. Environmental and/or energetic performance

PR.1. Health, safety and environmental protection

Criteria Pre-requisite

Within the framework of respect for human health, the safety of persons and installations and the protection of the environment, the producer proves that it deploys actions according to a level of requirement that complies at least with the prerogatives of the European directives 2011/65/EU and (EC) No 1907/2006 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

- Oven materials intended to come into direct or indirect contact with foodstuffs, including water, are compatible with food use and comply at least with Regulation (EC) No 1935/2004.

Method of proof: For products distributed in geographical areas potentially covered by regulatory prerogatives establishing requirements similar to the European market for limiting the use of certain hazardous substances in EEE, evidence of compliance with these regulatory requirements shall be used as a means of evidence in meeting the RSPs of this criterion where necessary.

- For large companies (> 5000 employees), the main site(s) involved in the production of the product has (have) a certification linked to an international environmental management standard.

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

PR.2. Energy efficiency

Criteria Pre-requisite

Within the framework of the reduction of impacts related to energy consumption or pollution emissions, the producer demonstrates the environmental and/or energy performance of its products.
It proves that it deploys actions according to a level of requirement that complies, at the very least, with the prerogatives of the European directives and/or regulations (EU) 2009/125/EC (including its implementing measures) on the ecodesign of energy-related products and (EU) 2017/1369 (including the delegated regulations) on the energy labeling of products, if the product applying for the LONGTIME® label is concerned.

- Electric ovens must comply with all eco-design measures applicable to domestic ovens traced in the European Commission (EU) Regulations N° 66/2014 implementing Directive 2009/125/EC.

Method 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, the proof of compliance with these regulatory requirements will serve as a mode of proof in the PSR compliance of this criterion if necessary.

- Electric ovens shall have a Cavity Energy Efficiency Index EEIcavity < 82

Method of proof: EEIcavity of the domestic electric oven must be calculated according to the methodology outlined in the European Commission Regulation (EU) N° 65/2014 Annex II

- The manufacturer clearly informs the user about the usage scenario(s) that will reduce the energy consumption of the appliance as much as possible and explains the differences in consumption between the different operating modes.

Method of proof: Eco-design measures evaluated by the Control Body appointed during the audit.

PR.3 End-of-life management of equipment

Criteria Pre-requisite

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

Method of Proof: In geographic distribution areas covered by regulatory prerogatives establishing product collection and recycling requirements, evidence of compliance with

those regulatory requirements will serve as the mode of proof in meeting the PSR of this criterion if necessary.

2. Conception

I.1.1. State of the art and technical solutions

KO criteria

The builder identifies and records in a technical sheet the constraints of use of the product and its various parts. He justifies the choice of reliable and qualitative design and technical solutions with regard to these constraints.

- Durability of the oven integration
  - The mechanism for securing the oven in its housing ensures robust integration but reversible even with the door locked
  - The unit must not tip over or be dislodged from its housing when opening of the door.

Method of proof: EN 60335-2-30/A13 Household and similar electrical appliances - Safety. Parts 2-6: Particular requirements for stationary stoves, hobs, ovens and similar appliances. Stability - open door (20.101). With an open door loaded with 22.5 kg (damage and deformation of doors and hinges ignored).

- Door durability
  - Wear resistance of the door and its hinges at 5000 opening/ closing without showing any abnormality.
    - The use of the oven door must not cause any abnormal noise
    - The door must not have a play of more than 2 mm in relation to the initial play on the 3 translation axes X, Y, Z.
    - The windows of the oven do not show any alteration
  - Robustness of the door and its hinges with resistance to an unanticipated load applied on the oven door completely open for 5 minutes without suffering damage
  - Robustness of the door glass with resistance to cold liquid splashes on the hot door without showing any damage

Proof mode durability of the door :
- *EN 60335-2-30/A13 Household and similar electrical appliances - Safety. Parts 2-6: Particular requirements for ovens. Door test - Pyrolytic self-cleaning ovens (22.108) or equivalent type AHAM ER-1-2017 Oven doors - strength (9.3.1)*
- *UL 858 Household electric ranges Oven doors -integrity (34) or AHAM ER-1-2017 Household Electric Ranges Oven doors - drop down (9.3.2)*
- *NF EN 60335-2-30/A13 Household and similar electrical appliances - Safety. Parts 2-6: Particular requirements for ovens. Mechanical strength - Thermal shock test on horizontal glass door panels (21.104)*

- Durability of resistors
  - Resistors shall have a minimum of 550 hours of operation

- without failure
- The base resistor and bottom resistor shall be preserved from impact and
- projections

Method of Proof: AHAM ER-1-2017 Household Electric Ranges Part 8.7.3 Oven Heating Unit Endurance or equivalent test standard.

❖ Durability of the fans

- Fan blades are protected from elements introduced into the cavity.
- If the blades are not protected, the fan motor must be capable of

operate normally when the blades are prevented from rotating without deteriorating or have an operational safety feature to protect the motor

- Reliability of bearings and/or bearings related to heat stirring fans
- Resistance to oxidation
- Resistance to heat
- Reliability of electric fan motors with a minimum of 550 hours of operation without failure.

Mode of proof: The fan shall operate intermittently with periods of 14 minutes 30 seconds on and 30 seconds off. This test shall be performed in a heated atmosphere consistent with the product's operating conditions. Based on the requirements of the Ecodesign Regulation for vacuum cleaners. No. 666/2013 - Motor service life.

❖ Durability of the muffle

- Grate supports shall not be integrated directly into the mass of the muffle
- Fasteners present inside the muffle have characteristics of high resistance to oxidation
- The thermal insulation or heat insulation material of the muffle is designed to maintain its characteristics over time

Method of proof:

- *Visual inspection and real time demonstration to the inspection agency. commissioned during the in situ audit.*
- *Quality certificate with screw classification in accordance with the conditions of uses required (heat and anti-corrosion).*
- *Method of proof: AHAM ER-1-2017 Household Electric Ranges Oven lining and*
- *insulation (8.7.2)*

❖ Durability of electrical and electronic components

- Resistance of the components to the conditions of use
  - Reliability of position sensors (Hall effect sensor recommended).
  - Robustness of control modules with high resistance to repeated manipulations
- Cables and hoses subjected to bending in normal use have mechanical strength characteristics of 100,000 cycles, and 5000 cycles for NTC type temperature sensors.

- Capacitor durability (permanent, starting): Class B minimum (10000 hours) or the applicant demonstrates that the capacitors are designed to operate durably under the environmental conditions of the furnace.
- Protection of components from thermal stress.
  - Thermal regulation (ventilation & cooling)
  - Protection against overheating (ventilation, spacing, heat sink...) of the components
- Sealing of electrical and electronic contacts provided by the product design or by design elements compatible with the objectives of promoting reparability.

Method of proof:
- Characterization of parts and processes by technical data, wear tests and aging tests
- IEC/EN 60335-2-6:2003+A13:2013 Household and similar electrical appliances - Safety - Part 2-6: Particular requirements for ovens
- Refer to IEC 60384-14 according to the capacitor mounted.
- Visual inspection and real time demonstration to the inspection body commissioned during the in situ audit.

❖ Durability of the lighting system of the muffle

Mode of proof: declaration of compliance with Commission Delegated Regulation(EU) 2019/2015 supplementing Regulation (EU) 2017/1369 and compliance with the thresholds of compliance specific to each category of light source in terms of survival factor.

❖ Specific measures for repair.
- Prohibited serialization practices.
- Intuitive failure mode diagnostic interfaces.

I.1.2. Production

Major criteria

The manufacturer justifies processes allowing him to control and maintain a constant quality of manufacture and assembly in the production.

❖ The major site(s) related to the production of the product has a certification related to an international quality management standard.

Method of proof: ISO 9001 certification by an approved third-party inspection body.

I.1.3. Consumable parts and accessories

Major criteria

Consumable parts, accessories and parts requiring regular maintenance comply with the accessibility scale A.

- Accessibility scale limited to 3 steps and 5 minutes
- The accessibility scale does not apply to parts that do not require disassembly to perform the maintenance action

Consumable parts :

- Light Bulb

Maintenance parts :

- Muffle
- Cooking accessory
- Door seal

Accessory parts :

- Grill(s)
- Frying pan
- Grid slide(s)
- Telescopic rail(s)

Method of proof: Visual inspection and demonstration in real time to the control body appointed during the on-site audit.

I.1.4. Safety elements

KO criteria

The replacement and/or resetting of product and/or user safety elements is provided for by the manufacturer. These elements respect the accessibility scale B.

- Accessibility scale limited to 10 steps and 15 minutes

- Electromechanical safety thermostat (Klixon type).
- Thermal fuses (electric motor, drive mechanism...)
- Position or safety sensor or contactors (Hall effect sensor type,
- microswitch, microswitch...)
- Temperature sensor (NTC type)
- Manual locking system (pyrolysis locking mechanism)
- Electronic locking system (switch, position switch)

Method of proof: Visual inspection and demonstration in real time to the control body appointed during the on-site audit.

- The automatic reset elements are designed for long-term operation and comply with a minimum number of tripping cycles.
  - Self-resetting thermal cutouts: 300 cycles
  - Non-self-resetting thermal cut-outs maintained in voltage: 1000 cycles
  - Klixon-type safety thermostat (electromechanical): 1000 cycles.

Method of proof: IEC 60335-1:2010+A1:2013/EN 60335-1:2012 Household and similar electrical appliances, Safety Part 1: General requirements, Control element (24.1.4)

I.1.5. Vulnerable parts

KO criteria

Vulnerable parts are defined in the PSR. The replacement of these parts respects the accessibility scale B.

- Accessibility scale limited to 5 steps and 15 minutes

  - Oven door assembly
    - Glass (int/ext)

I.1.6. Not in use

Minor criteria

The manufacturer identifies the consequences of not using the product and must inform the consumer in the recommendations for use of the minimum use necessary for the proper functioning of the product.

- Not Applicable.

Method of proof: Evaluated by the control body commissioned during the audit on the basis of user manuals

I.1.7. Non-proven technology

KO criteria

The manufacturer shall provide information on the proportion of unproven technology in its product. It must provide the means implemented to guarantee its reliability or ensure that the normal use of the product does not depend on this technology.

- IOT function

Method of proof : Real-time demonstration to the inspection body during the on-site audit.

I.1.8. External source parts

Minor criteria

The manufacturer shall keep records of externally sourced parts purchased and/or subcontracted. He must provide information on their origin and quality.

I.1.9. Reliability plan

Minor criteria

The manufacturer provides his own FMEA or internal audit and identifies the changes implemented to improve the reliability and/or repairability of the product. Corrections or improvements already made to the product are reported.

I.1.10. Sub-assembly

Major criteria

The design of the product must only use sub-assemblies on technical justification or on proof of reliability.

Without technical justification, the sub-assemblies must be the subject of a reconditioning and/or standard exchange route or the manufacturer must demonstrate the economic interest for the user.

3. Evolutivity

I.2.1. Software

Major criteria

The manufacturer shall ensure that the original performance of its product is maintained during O.S. updates without time limit. The manufacturer identifies and records the means he uses to monitor the maintenance of these post-maj performances.

- Corrective and evolutionary updates must be unbundled
- Availability of security updates 7 years minimum
- Availability of operating system evolutionary updates 6 years minimum

4. Traceability

I.3.1. Study and failure rate

Minor criteria

The manufacturer provides failure rates and/or indicators to monitor the reliability of the product at least until the last unit of the model concerned is put on the market.

❖ Special attention will be given to the following failures:

- Electronic failure, short circuit (power board, component, printed circuit board) Display device failure (connector, electronic display board, display, lighting, LED)
- Control panel failure (programmer/display)
- Control functions failure (buttons, touch system, programmer)
- Firmware failure (blocking, slowing down)
- Thermal management failure (resistance / thermostat-probe / electronic management)
- Door locking mechanism failure (pyrolysis lock)
- Door failure (pyrolysis locking mechanism, hinge)
- Failure of the resistors (breakage, short circuit)
- Door opening problem (hinge)
- Muffle alteration (wall corrosion, internal screw corrosion)
- Failure of ventilation functions (electric motor, propeller, probe, electronic board
- electronic board, starting capacitor)
- Control failure (fan, probe, control electronic board)

Method of proof: Various indicators will be sought by the auditor such as the distributors' after-sales service return rates, internal breakdown rates, after-sales service activity recorded on professional software, and the volume of spare parts sales.

I.3.2. Identification number

Minor criteria

The manufacturer uses a number or method of identification on each product.

5. Disassembling

II.1.1. Packaging of the product

KO criteria

The body of the product is removable and allows access to the internal components in accordance with accessibility scale B. Permanent assemblies are not permitted unless justified by the nature or use of the product.

❖ Accessibility scale limited to 5 steps and 10 minutes

- Oven Body Assembly :
  - Frame
  - Base, stand, base
  - Feet
  - Faceplate
  - Control panel
  - Hood, covers (side, top) ‣ Side supports

- Cover panels (rear, side)

- Permanent assembly not justifiable, not allowed.
- In the case of assembly by clips, verification of the quality of the clips and the availability of the location information.

Method of Proof: Compliance with the disassembly criterion will be established during the in-situ audit by an approved auditor.

II.1.2. Access to functional parts

Major criteria

The accessibility of the functional rooms cannot exceed the accessibility scale C.

- Accessibility scale limited to 10 steps and 20 minutes

- Electronic electrical assembly
  - Operating system
  - Software, Firmware
  - IOT module
  - Triac
  - Interference filter ‣ Wiring
  - Electrical terminal block

- Display and control unit
  - Analog or digital display
  - Backlight units
  - Control button (mechanical, tactile, touch-sensitive)
  - Program selector, programmer, switch ‣ Timer

- Oven door assembly
  - Oven door structure ‣ Smoke deflector
  - Door handle
  - Glass holder
  - Door hinge
  - Hinge guide

- Cavity assembly
  - Spindle
  - Spit electric motor
  - Lamp holder
  - Thermal insulation materials or heat insulating element

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

II.1.3. Access to priority parts

Major criteria

Access to priority rooms meets accessibility scale B or has a reliability plan in place.

- Accessibility scale limited to 10 steps and 15 minutes

  - Electronic electrical assembly
    - Electronic display board
    - Electronic control board
    - Power electronic board or motherboard
    - Program selector switch
    - Starting capacitor linked to the motor fans
    - Resistance relay
  - Cavity assembly
    - Pyrolytic muffle (tolerance allowed)
    - Catalytic wall
    - Tangential cooling fan motor

  - Oven door assembly
    - Door latch (electronic or electromechanical)

  - Resistor assembly
    - Lower resistor or base
    - Upper resistor or vault
    - Bottom or circular resistor
    - Rotating heat, pulsating motor fan (electric motor, propellers/poles,
    - bearings)

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

II.1.4. Sub-assembly connectors (internal parts)

Major criteria

Replacement subassembly connectors must not interfere with the repair of the product.

- All the connector fixing elements must be at least removable (class B standard EN45554:2020).

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

II.1.5. Batteries

KO criteria

The manufacturer justifies a solution for the replacement of the batteries of the devices with autonomous operation.

- Not Applicable

II.1.6. Disassembly tools

Major criteria

No proprietary tools are required to disassemble the product, except for regulatory justification.

- As no regulations have been identified, the use of proprietary tools in terms of reparability is prohibited. A tolerance is allowed for tools made available by the company to all interested parties without conditions.

Method of proof: Evaluated by the control body appointed during the on-site audit.

- The list of tools for repairability of this product group shall be in accordance with the list in table A2 of EN 45554:2020 plus basic tools specific to the target product group.
  - Puller of bearings and/or bearings that may exist in electric motors or transmission systems
  - Extractor of seals

- Tolerance allowed for proprietary tools supplied on request at no extra cost with the spare part.

Method of proof: Evaluated by the mandated Inspection Body during the in-situ audit.

6. Documentation

II.2.1. Exploded view

Major criteria

The manufacturer makes available to users directly or indirectly through its partners or its network, diagram(s) or exploded view(s) of the product as well as a nomenclature of parts and sub-assemblies of the product.

II.2.2. Exploded view

Minor criteria

The manufacturer references and delivers more specific exploded views to help identify and name a part.

II.2.3. Default code

Major criteria

The user and repairer fault codes must be present in the respective documentation and/or accessible on the manufacturer's website.

II.2.4. Repair manual

Minor criteria

The manufacturer shall make available to repairers the information necessary to repair the product OR shall provide evidence of economically viable alternatives for the end user.

- The electric ovens must comply with all the eco-design measures applicable to domestic ovens traced in the European Commission (EU) Regulations No. 66/2014 of 14/01/2014 implementing Directive 2009/125/EC and more particularly those relating to the transmission of information for the resolution of failure scenarios including maintenance.

- All documents necessary for the resolution of failure scenarios must be accessible to all professionals in the sector (approved or not approved) and as a priority:
  - Technical manual of instructions for diagnostics including error and diagnostic codes
  - Schematic(s) of electronic boards including information on components and their diagnosis
  - Technical instruction manual relating to repair
  - Disassembly diagram(s)
  - Software instruction (including reset)

  Method of proof:
  - *For products distributed in geographic areas potentially covered by regulatory prerogatives establishing requirements similar to the European market in terms of eco-design strategy related to the sustainability of EEE, evidence of compliance with these regulatory requirements will serve as a mode of proof in meeting the RSPs of this criterion if necessary.*
  - *Evaluated by the mandated Inspection Body during the documentary audit and the in-situ audit.*

II.2.5. Fault diagnosis software

Minor criteria

Fault diagnosis software packages shall be free of charge after the end of the full warranty period with respect to the end of manufacture of the product.

7. Spare parts

II.3.1. Nomenclature

Major criteria

All spare parts or subassemblies are uniquely named and coded to facilitate identification and ordering of parts.

II.3.2. Availability time

KO criteria

The manufacturer commits in its GTC or via commercial communication to the availability of spare parts or replacement parts for the product for a minimum of 5 to 10 years from the date the last unit of the model concerned was put on the market. The minimum availability time required is determined in the PSR.

- Availability of spare parts 10 years minimum (Class A - Long-term accessibility. Table A9 according to EN 45554)

Method of proof: General conditions of sale.

II.3.3. Time of supply

Minor criteria

For functional parts or sub-assemblies, the manufacturer has a minimum reserve to meet the probability of demand for said part OR justifies a supply process within the same time frame.

II.3.4. Spare parts prices

Major criteria

The terms of purchase of spare parts are detailed (average price, distribution network, etc.). The manufacturer makes every effort to limit the total price of functional parts to the maximum recommended selling price of the product.

The value of one of these functional parts may not exceed the fixed percentage of the maximum recommended selling price of the product.

- Percentage fixed at 35%. A tolerance is allowed for parts whose unit cost price exceeds 35%.
- All replacement parts must be accessible.

Method of proof: Visual inspection and real time demonstration to the mandated control body during the documentary audit or the in situ audit.

II.3.5. Price of shipping costs

Minor criteria

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

8. After sales-services under warranty

II.4.1. Customer service contact

Minor criteria

The maximum time for opening an after sales service file should not exceed 2 working days.

II.4.2. Customer service network

Major criteria

The manufacturer provides the end user with an after-sales service network in line with its direct distribution network.

II.4.3. Repair policy

Major criteria

Repair must take priority over replacement.

9. Out-of-warranty after sales service

II.5.1. After-sales service network

Minor criteria

The user benefits from means facilitating the repair of his product out of warranty. To take charge of the product to be repaired, the manufacturer must allow the user to benefit from its distribution and repair network.

10. Free long-term warranty

III.1.1. Warranty period

KO criteria

The warranty period with presumption of anteriority of the defect is determined in the PSR. This period cannot be less than 24 months.

- 24 months minimum

Method of proof: Evaluated by the control body commissioned during the audit on the basis of the user manuals

III.1.2. Warranty conditions (beyond the legal period of conformity)

Major criteria

For the categories of product considered of "great utility", the manufacturer provides the provision of a replacement good to the user during the period of immobilization of the product for repair.

- Product considered of great use.

III.1.3. Exclusion of warranty

Major criteria

Warranty exclusions must not be abusive with respect to the normal use of the product. They will be defined in the PSR.

- No Warranty exclusions identified as abusive

III.1.4. Warranty assignment

Major criteria

The manufacturer sets up a transferable warranty system.

III.1.5. Original packaging

Minor criteria

The return of the original packaging cannot be required for the warranty to be honored.

11. Use and maintenance advices

III.2.1. Usage informations provided

Major criteria

The manufacturer delivers with the product a manual with advice on the use and maintenance of the product. This information must be exhaustive and relevant in order to reduce the exogenous failure rate.

- The manufacturer clearly makes the user aware, via the manual and/or its website, of the responsible use of the machine
  - Maintenance
  - Use
  - Valuation of consumables
  - Repair

Method of proof: Visual inspection and demonstration in real time to the mandated inspection body during the documentary audit or the in situ audit (physical and/or digital user manual).

III.2.2. Usage informations provided

Major criteria

The use and maintenance advice booklet is clear, simple and accessible (adapted font size, vocabulary, language and print quality), in order to be easily understood by the end users.

III.2.3. Informations access

Minor criteria

Information on the use and maintenance of the property must be available in digital form on request or freely available on the manufacturer's website.

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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 AHAM ER-1-2017 Household Electric Ranges Norme UL 858 Household Electric ranges

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