EUROPEAN
COMMISSION

Brussels, XXX
[…](2013) XXX draft

COMMISSION REGULATION (EU) No …/..

of XXX

implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for domestic ovens, hobs and range hoods

(Text with EEA relevance)

COMMISSION REGULATION (EU) No …/..

of XXX

implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for domestic ovens, hobs and range hoods

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

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

Having regard to Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products[1], and in particular Article 15(1) thereof,

After consulting the Consultation Forum referred to in Article 18 of the Directive 2009/125/EC,

Whereas:

(1) Directive 2009/125/EC requires the Commission to set ecodesign requirements for energy-related products that account for significant volumes of sales and trade, have a significant environmental impact and present significant potential for improvement through design in terms of their environmental impact, without entailing excessive costs.

(2) Article 16(2)(a) of Directive 2009/125/EC provides that in accordance with the procedure referred to in Article 19(3) and the criteria set out in Article 15(2), and after consulting the Consultation Forum, the Commission has to, as appropriate, introduce implementing measures for products offering a high potential for cost-effective reduction of greenhouse gas emissions, such as domestic appliances, including ovens, hobs and range hoods.

(3) The Commission has carried out preparatory studies to analyse the technical, environmental and economic aspects of domestic cooking appliances such as ovens, hobs and range hoods. These studies involved stakeholders and interested parties from the Union and third countries, and the results have been made publicly available.

(4) The main environmental aspect of the products covered that has been identified as significant for the purposes of this Regulation is energy consumption in the use phase.

(5) Standby and off-mode functions can be responsible for much of the total power consumption of domestic cooking appliances such as ovens, hobs and range hoods. For such appliances, power consumption of these functions is part of the minimum energy performance requirements. Standby and off-mode requirements for domestic ovens and hobs are set on the basis of the ecodesign requirements of Commission Regulation (EC) No 1275/2008 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for standby and

[1] OJ L 285, 31.10.2009, p. 10.

off mode electric power consumption of electrical and electronic household and office equipment [2].

(6) The annual energy consumption of domestic ovens, hobs and range hoods was estimated to be 755 PJ (primary energy consumption) in the EU in 2010. Unless specific measures are taken, annual energy consumption is predicted to be 779 PJ in 2020. The preparatory studies show that the energy consumption of those products can be significantly reduced.

(7) In combination, the ecodesign requirements set out in this Regulation and the labelling requirements of Commission Delegated Regulation XXX/2013 *[Numbering of the Commission Delegated Regulation on the energy labelling of domestic ovens and range hoods and OJ reference in footnote to be added before publication in the OJ]*, are expected to result in annual primary energy savings of 27 PJ/a in 2020, increasing to 60 PJ/a by 2030.

(8) The preparatory studies show that requirements regarding other ecodesign parameters referred to in Part 1, point 1,3 of Annex I of Directive 2009/125/EC are not necessary as electricity and gas consumption of domestic cooking appliances such as ovens, hobs and range hoods in the use phase is the most significant environmental aspect.

(9) Products subject to this Regulation should be made more energy-efficient by applying existing non-proprietary cost-effective technologies that can reduce the combined costs of purchasing and operating these products.

(10) The ecodesign requirements should not affect functionality from the end-user's perspective and should not negatively affect health, safety or the environment. In particular, the benefits of reducing energy consumption during the use phase should more than offset any possible additional environmental impact during the production phase and at the time of disposal.

(11) The ecodesign requirements should be introduced gradually in three tiers in order to provide a sufficient timeframe for manufacturers to re-design products subject to this Regulation. Such timeframe should avoid any negative impact on the functionality of equipment already on the market and should take into account costs incurred by end-users and manufacturers, in particular small and medium-sized enterprises, while ensuring timely achievement of the objectives of this Regulation.

(12) Product parameters should be measured and calculated using reliable, accurate and reproducible methods which take into account recognised state-of-the-art measurement and calculation methods, including, where available, harmonised standards adopted by the European standardisation organisations, as listed in Annex I to Regulation (EU) 1025/2012 of the European Parliament and of the Council of 25 October 2012 on European standardisation[3].

(13) In accordance with Article 8 of Directive 2009/125/EC, this Regulation specifies the applicable conformity assessment procedures.

(14) In order to facilitate compliance checks, manufacturers should provide information in the technical documentation referred to in Annexes IV and V to Directive 2009/125/EC insofar as this information relates to the requirements laid down in this Regulation.

---

2 OJ L 339, 18.12.2008, p. 45.

3 OJ L 316, 14.11.2012, p. 12.

(15) To ensure fair competition, and with a view to achieving the intended energy savings and accurately informing consumers on products' energy performance, this Regulation should make clear that the tolerances prescribed for the national market surveillance authorities, when conducting physical tests to establish whether a specific model of an energy-related product is in compliance with this Regulation, should not be used by the manufacturers to provide room for declaring a more favourable performance of the model than measurements and calculations declared in the technical documentation of the product can justify.

(16) In addition to the legally binding requirements laid down in this Regulation, indicative benchmarks for best-performing appliances available on the market should be identified to ensure wide availability and easy accessibility of information on the most relevant environmental aspects in the life-cycle environmental performance of products subject to this Regulation.

(17) It is appropriate to provide for a review of the provisions of this Regulation taking into account technological progress, and in particular the effectiveness and the appropriateness of the approach followed for the determination of the ovens energy efficiency.

(18) The measures provided for in this Regulation are in accordance with the opinion of the Committee established by Article 19(1) of Directive 2009/125/EC,

HAS ADOPTED THIS REGULATION:

Article 1

Subject matter and scope

1. This Regulation establishes eco-design requirements for the placing on the market and putting into service of domestic ovens (including when incorporated in cookers), domestic hobs and domestic electric range hoods, including when sold for non-domestic purposes.

2. This Regulation shall not apply to:

   (a) appliances that use energy sources other than electricity or gas;

   (b) appliances which offer 'microwave heating' function;

   (c) small ovens;

   (d) portable ovens;

   (e) heat storage ovens;

   (f) ovens which are heated with steam as a primary heating function;

   (g) covered gas burners in hobs;

   (h) outdoor cooking appliances;

   (i) appliances designed for use only with gases of the "third family" (propane and butane);

   (j) grills.

Article 2

Definitions

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

(1) ‘oven’ means an appliance or part of an appliance which incorporates one or more cavities using electricity and/or gas in which food is prepared by use of a conventional or fan-forced mode;

(2) ‘cavity’ means the enclosed compartment in which the temperature can be controlled for preparation of food;

(3) ‘multi-cavity oven’ means an oven with two or more cavities, each of which is heated separately;

(4) ‘small oven’ means an oven where all cavities have a width and depth of less than 250 mm or a height less than 120 mm;

(5) ‘portable oven’ means an oven with a product mass of less than 18 kilograms, provided it is not designed for built-in installations;

(6) ‘microwave heating’ means heating of food using electromagnetic energy;

(7) ‘conventional mode’ means the operation mode of an oven only using natural convection for circulation of heated air inside the cavity of the oven;

(8) ‘fan-forced mode’ means a mode when a built-in fan circulates heated air inside the cavity of the oven;

(9) ‘cycle’ means the period of heating a standardised load in a cavity of an oven under defined conditions;

(10) ‘cooker’ means an appliance consisting of an oven and a hob using gas or electricity;

(11) ‘operation mode’ means the status of the oven or hob during use;

(12) ‘heat source’ means the main energy form for heating an oven or hob;

(13) ‘electric hob’ means an appliance or part of an appliance which incorporates one or more cooking zones and/or cooking areas including a control unit and which is heated by electricity;

(14) ‘gas hob’ means an appliance or part of an appliance which incorporates one or more cooking zones including a control unit and which is heated by gas burners of a minimum power of 1.16 kW;

(15) ‘hob’ means an ‘electric hob’, a ‘gas hob’ or a ‘mixed hob’;

(16) ‘covered gas burners' means closed or sealed gas range burners covered with a heavy-duty glass or ceramic cover, which forms a smooth, seamless cooking surface;

(17) ‘mixed hob’ means an appliance with one or more electrically heated cooking zones or areas and one or more cooking zones heated by gas burners;

(18) ‘cooking zone’ means a part , with a diameter of at least 100 mm, of a hob where cookware is placed and heated with not more than one piece of cookware heated at a time; the area of the cooking zone may be visibly marked on the surface of the hob;

(19) ‘cooking area’ means a part of an area of an electric hob heated by an inducted magnetic field, where cookware is placed for heating without visible marking for the cookware and where more than one item of cookware can be used simultaneously;

(20) ‘range hood’ means an appliance, operated by a motor which it controls, intended to collect contaminated air from above a hob, or which includes a downdraft system intended for installation adjacent to cooking ranges, hobs and similar cooking products, that draws vapour down into an internal exhaust duct;

(21) ‘automatic functioning mode during the cooking period’ means a condition in which the air flow of the range hood during the cooking period is automatically controlled through sensor(s), including as regards humidity, temperature, etc.;

(22) ‘fully automatic range hood’ means a range hood in which the air flow and/or other functions are automatically controlled through sensor(s) during 24 hours including the cooking period;

(23) ‘best efficiency point’ (BEP) means the range hood operating point with maximum fluid dynamic efficiency (FDE_{hood});

(24) ‘average illumination’ (E_{middle}) means the average illumination provided by the lighting system of the range hood on the cooking surface, measured in lux;

(25) ‘off mode’ means a condition in which the equipment is connected to the mains power source but is not providing any function, or only provides an indication of off mode condition, or only provides functionalities intended to ensure electromagnetic compatibility pursuant to Directive 2004/108/EC [4];

(26) ‘standby mode’ means a condition where the equipment is connected to the mains power source, depends on energy input from the mains power source to work as intended and provides only reactivation function, or reactivation function and only an indication of enabled reactivation function, and/or information or status display, which may persist for an indefinite time;

(27) ‘reactivation function’ means a function facilitating the activation of other modes, including the active mode, by remote switch including remote control, internal sensor, or timer to a condition providing additional functions, including the main function;

(28) ‘information or status display’ means a continuous function providing information or indicating the status of the equipment on a display, including clocks;

(29) ‘end-user’ means a consumer buying or expected to buy a product;

(30) ‘equivalent model’ means a model placed on the market with the same technical parameters as another model placed on the market under a different commercial code number by the same manufacturer or importer.

Article 3

Ecodesign requirements and timetable

1. The ecodesign requirements, including timing, for domestic ovens, hobs and range hoods are set out in Annex I.

2. Compliance with ecodesign requirements shall be measured and calculated in accordance with the methods set out in Annex II.

[4] Directive 2004/108/EC of the European Parliament and of the Council of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC, OJ L 390, 31.12.2004, p.24.

Article 4

Conformity assessment

1. The conformity assessment procedure referred to in Article 8 of Directive 2009/125/EC shall be the internal design control system set out in Annex IV to that Directive or the management system set out in Annex V to that Directive.

2. For the purposes of conformity assessment pursuant to Article 8 of Directive 2009/125/EC, the technical documentation file shall contain a copy of the calculation set out in Annex II to this Regulation.

3. Where the information included in the technical documentation for a model has been obtained by calculation on the basis of design, or extrapolation from other equivalent appliances, or both, the technical documentation shall include details of such calculations or extrapolations, or both, and of tests undertaken by manufacturers to verify the accuracy of the calculations undertaken. In such cases, the technical documentation shall also include a list of all other equivalent models where the information contained in the technical documentation was obtained on the same basis.

4. If the manufacturer or importer places on the market equivalent models, the manufacturer or importer shall include a list of all other equivalent models.

Article 5

Verification procedure for market surveillance purposes

Member States' authorities shall apply the verification procedure described in Annex III to this Regulation when performing the market surveillance checks referred to in Article 3(2) of Directive 2009/125/EC for compliance with requirements set out in Annex I to this Regulation.

Article 6

Indicative benchmarks

The indicative benchmarks for best-performing appliances available on the market at the time of entry into force of this Regulation are set out in Annex IV.

Article 7

Review

The Commission shall review this Regulation in the light of technological progress and present the result of this review to the Consultation Forum no later than 7 years after the entry into force of the Regulation. The review shall assess, amongst others, the feasibility of: potential requirements to enhance the recovery and recycling of the appliances; durability and lifetime requirements; the inclusion of professional and commercial appliances; and fume and odour removal requirements.

Article 8

Entry into force and application

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

2. It shall apply from 1 year after the entry into force.

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

Done at Brussels,

For the Commission
The President
José Manuel BARROSO

ANNEX I
Ecodesign requirements

1. ENERGY EFFICIENCY, AIR FLOW AND ILLUMINATION REQUIREMENTS

1.1. For domestic ovens

Cavities of domestic ovens (including when incorporated in cookers) shall comply with maximum Energy Efficiency Index limits as indicated in Table 1.

Table 1 - Energy Efficiency Index limits for cavities of domestic ovens (EEI_{cavity})	
	Domestic electric & gas oven
From 1 year after the entry into force	$EEI_{cavity} < 146$
From 2 years after the entry into force	$EEI_{cavity} < 121$
From 5 years after the entry into force	$EEI_{cavity} < 96$

From 5 years after entry into force, for multi-cavity ovens (including when incorporated in cookers), at least one cavity shall comply with the maximum Energy Efficiency Index as indicated in Table 1 as applicable from 5 years after entry into force whereas the other cavities shall comply with the maximum Energy Efficiency Index as indicated in Table 1 as applicable from 2 years after entry into force.

1.2. For domestic hobs

The domestic hobs shall have the maximum energy consumption limits for electric hobs ($EC_{electric\ hob}$) and the minimum energy efficiency limits for gas-fired hobs ($EE_{gas\ hob}$) as indicated in Table 2.

Table 2 - Energy efficiency performance limits for domestic hobs ($EC_{electric\ hob}$ and $EE_{gas\ hob}$)		
	Electric hob ($EC_{electric\ hob}$ in Wh/kg)	Gas-fired hob ($EE_{gas\ hob}$ in %)
From 1 year after the entry into force	$EC_{electric\ hob} < 210$	$EE_{gas\ hob} > 53$
From 3 years after the entry into force	$EC_{electric\ hob} < 200$	$EE_{gas\ hob} > 54$
From 5 years after the entry into force	$EC_{electric\ hob} < 195$	$EE_{gas\ hob} > 55$

1.3. For domestic range hoods

1.3.1. Energy Efficiency Index (EEI_{hood}) and Fluid Dynamic Efficiency (FDE_{hood})

The domestic range hoods shall have the maximum EEI_{hood} and the minimum FDE_{hood} limits as indicated in Table 3.

Table 3 - Energy Efficiency Index (EEI_{hood}) and Fluid Dynamic Efficiency (FDE_{hood}) for domestic range hoods		
	EEI_{hood}	FDE_{hood}
From 1 year after the entry into force	$EEI_{hood} < 120$	$FDE_{hood} > 3$
From 3 years after the entry into force	$EEI_{hood} < 110$	$FDE_{hood} > 5$
From 5 years after the entry into force	$EEI_{hood} < 100$	$FDE_{hood} > 8$

1.3.2. Air flow

From 1 year after the entry into force, the domestic range hoods with a maximum air flow in any of the available settings higher than 650 m^3/h shall automatically revert to an air flow lower than or equal to 650 m^3/h in a time t_{limit} as defined in Annex II.

1.3.3. Low power modes for domestic range hoods

(1) From 18 months after the entry into force:

- Power consumption in 'off mode': the power consumption in any off-mode condition shall not exceed 1.00 W.
- Power consumption in 'standby mode(s)':

  The power consumption in any condition providing only a reactivation function, or providing only a reactivation function and a mere indication of enabled reactivation function, shall not exceed 1.00 W.

  The power consumption of equipment in any condition providing only information or status display, or providing only a combination of reactivation function and information or status display, shall not exceed 2.00 W.
- Availability of 'off mode' and/or 'standby mode': domestic range hoods shall provide 'off mode' and/or 'standby mode', and/or another condition which does not exceed the applicable power consumption requirements for 'off mode' and/or 'standby mode' when the equipment is connected to the mains power source.

(2) From 3 years and 6 months after the entry into force:

- Power consumption in 'off mode': the power consumption in any off mode condition shall not exceed 0.50 W.
- Power consumption in 'standby mode(s)': the power consumption in any condition providing only a reactivation function, or providing only a reactivation function and a mere indication of enabled reactivation function, shall not exceed 0.50 W.

  The power consumption of equipment in any condition providing only information or status display, or providing only a combination of reactivation function and information or status display shall not exceed 1.00 W.
- Power management: when domestic range hoods are not providing the main function, or when other energy-using product(s) are not dependent on its functions, equipment shall, unless inappropriate for the intended use, offer a power management function, or a similar function, that switches equipment after the shortest possible period of time appropriate for the intended use of the equipment, automatically into:
  - 'standby mode', or
  - 'off mode', or
  - another condition which does not exceed the applicable power consumption requirements for 'off mode' and/or 'standby mode' when the equipment is connected to the mains power source.

The power management function shall be activated before delivery.

- For range hoods with automatic functioning mode during the cooking period and fully automatic range hoods, the delay time after which the product switches automatically into the modes and conditions as referred to in the previous point shall be one minute after the motor and lighting have both been switched off either automatically or manually.

1.3.4. Illumination of the lighting

From 1 year after entry into force, for range hoods which provide for lighting of the cooking surface, the average illumination of the lighting system on the cooking surface (E_{middle}) shall be higher than 40 lux when measured under standard conditions.

2. PRODUCT INFORMATION REQUIREMENTS

From 1year after entry into force, the following product information shall be provided in the technical documentation of the product, the booklet of instructions and on the free access websites of manufacturers of domestic ovens, hobs and range hoods, their authorized representatives, or importers:

(a) short title or reference to the measurement and calculation methods used to establish compliance with the above requirements;

(b) information relevant to users in order to reduce total environmental impact (e.g. energy use) of the cooking process.

From 1 year after entry into force, the technical documentation and a part for professionals of the free access websites of manufacturers, their authorized representatives, or importers shall contain information relevant for non-destructive disassembly for maintenance purposes and information relevant for dismantling, in particular in relation to the motor, if applicable, and any batteries, recycling, recovery and disposal at end-of-life.

2.1. For domestic ovens

Table 4 – Information for domestic ovens

	Symbol	Value	Unit
Model identification			
Type of oven			
Mass of the appliance	M	X.X	kg
Number of cavities		X	
Heat source per cavity (electricity or gas)			
Volume per cavity	V	X	l
Energy consumption (electricity) required to heat a standardised load in a cavity of an electric heated oven during a cycle in conventional mode per cavity (electric final energy)	$EC_{electric\ cavity}$	X.XX	kWh/cycle
Energy consumption required to heat a standardised load in a cavity of an electric heated oven during a cycle in fan forced mode per cavity (electric final	$EC_{electric\ cavity}$	X.XX	kWh/cycle

energy)			
Energy consumption required to heat a standardised load in a gas-fired cavity of an oven during a cycle in conventional mode per cavity (gas final energy)	$EC_{gas\ cavity}$	X.XX X.XX	MJ/cycle kWh/cycle[5]
Energy consumption required to heat a standardised load in a gas-fired cavity of an oven during a cycle in fan forced mode per cavity (gas final energy)	$EC_{gas\ cavity}$	X.XX X.XX	MJ/cycle kWh/cycle
Energy Efficiency Index per cavity	EEI_{cavity}	X.X	

2.2. For domestic hobs

2.2.1. Domestic electric hobs

Table 5a – Information for domestic electric hobs			
	Symbol	Value	Unit
Model identification			
Type of hob			
Number of cooking zones and/or areas		X	
Heating technology (induction cooking zones and cooking areas, radiant cooking zones, solid plates)			
For circular cooking zones or area: diameter of useful surface area per electric heated cooking zone, rounded to the nearest 5 mm	Ø	X.X	cm
For non-circular cooking zones or areas: length and width of useful surface area per electric heated cooking zone or area, rounded to the nearest 5 mm	L W	X.X X.X	cm
Energy consumption per cooking zone or area calculated per kg	$EC_{electric\ cooking}$	X.X	Wh/kg
Energy consumption for the hob calculated per kg	$EC_{electric\ hob}$	X.X	Wh/kg

2.2.2. Domestic gas-fired hobs

Table 5b – Information for domestic gas-fired hobs			
	Symbol	Value	Unit
Model identification			
Type of hob			
Number of gas burners		X	
Energy efficiency per gas burner	$EE_{gas\ burner}$	X.X	
Energy efficiency for the gas hob	$EE_{gas\ hob}$	X.X	

2.2.3. Domestic mixed gas and electric hobs

Table 5c – Information for domestic mixed hobs			
	Symbol	Value	Unit

[5] 1 kWh/cycle = 3.6 MJ/cycle

Model identification			
Type of hob			
Number of electric cooking zones and/or areas		X	
Heating technology (induction cooking zones and cooking areas, radiant cooking zones, solid plates) per electric cooking zone and/or area			
For circular electric cooking zones: Diameter of useful surface area per electric heated cooking zone, rounded to the nearest 5 mm	Ø	X.X	cm
For non-circular electric cooking zones or areas: Length and width of useful surface area per electric heated cooking zone or area, rounded to the nearest 5 mm	L W	X.X X.X	cm
Energy consumption per electric cooking zone or area calculated per kg	$EC_{electric\ cooking}$	X	Wh/kg
Number of gas fired burners		X	
Energy efficiency per gas burner	$EE_{gas\ burner}$	X.X	

2.3. For domestic range hoods

Table 6 – Information for domestic range hoods			
	Symbol	Value	Unit
Model identification			
Annual Energy Consumption	AEC_{hood}	X.X	kWh/a
Time increase factor	f	X.X	
Fluid Dynamic Efficiency	FDE_{hood}	X.X	
Energy Efficiency Index	EEI_{hood}	X.X	
Measured air flow rate at best efficiency point	Q_{BEP}	X.X	m^3/h
Measured air pressure at best efficiency point	P_{BEP}	X	Pa
Maximum air flow	Q_{max}	X.X	m^3/h
Measured electric power input at best efficiency point	W_{BEP}	X.X	W
Nominal power of the lighting system	W_L	X.X	W
Average illumination of the lighting system on the cooking surface	E_{middle}	X	lux
Measured power consumption in standby mode	P_s	X.XX	W
Measured power consumption off mode	P_o	X.XX	W
Sound power level	L_{WA}	X	dB

ANNEX II
Measurements and calculations

For the purposes of compliance and verification of compliance with the requirements of this Regulation, measurements and calculations shall be made using a reliable, accurate and reproducible method that take into account the generally recognised state-of-the art measurement and calculation methods, including harmonised standards the reference numbers of which have been published for the purpose in the *Official Journal of the European Union*. They shall meet the technical definitions, conditions, equations and parameters set out in this Annex.

1. DOMESTIC OVENS

The energy consumption of a cavity of a domestic oven shall be measured for one standardised cycle, in a conventional mode and in a fan-forced mode, if available, by heating a standardised load soaked with water. It shall be verified that the temperature inside the oven cavity reaches the temperature setting of the thermostat and/or the oven control display within the duration of the test cycle. The energy consumption per cycle corresponding to the best performing mode (conventional mode or fan-forced mode) shall be used in the following calculations.

For each cavity of a domestic oven, the Energy Efficiency Index (EEI_{cavity}) shall be calculated according to the following formulas:

for domestic electric ovens:

$$EEI_{cavity} = \frac{EC_{electric\ cavity}}{SEC_{electric\ cavity}} \times 100$$

$$SEC_{electric\ cavity} = 0.0042 \times V + 0.55 \text{ (in kWh)}$$

for domestic gas ovens:

$$EEI_{cavity} = \frac{EC_{gas\ cavity}}{SEC_{gas\ cavity}} \times 100$$

$$SEC_{gas\ cavity} = 0.044 \times V + 3.53 \text{ (in MJ)}$$

Where:

- EEI_{cavity} = Energy Efficiency Index for each cavity of a domestic oven, rounded to the first decimal place;
- $SEC_{electric\ cavity}$ = Standard Energy Consumption (electricity) required to heat a standardised load in a cavity of a domestic electric heated oven during a cycle, expressed in kWh, rounded to the second decimal place;
- $SEC_{gas\ cavity}$ = Standard Energy Consumption required to heat a standardised load in a cavity of a domestic gas-fired oven during a cycle, expressed in MJ, rounded to the second decimal place;

– V = Volume of the cavity of the domestic oven in litres (L), rounded to the nearest integer;

– $EC_{electric\ cavity}$ = Energy Consumption required to heat a standardised load in a cavity of a domestic electric heated oven during a cycle, expressed in kWh, rounded to the second decimal place;

– $EC_{gas\ cavity}$ = Energy Consumption required to heat a standardised load in a gas-fired cavity of a domestic oven during a cycle, expressed in MJ, rounded to the second decimal place.

2. DOMESTIC HOBS

2.1. Domestic electric hobs

The energy consumption of a domestic electric hob ($EC_{electric\ hob}$) is measured in Wh per kg of water heated in a normalised measurement (Wh/kg) considering all cookware pieces under standardised test conditions and rounded to the first decimal place.

2.2. Domestic gas hobs

The energy efficiency of gas burners in a domestic hob is calculated as follows:

$$EE_{gas\ burner} = \frac{E_{theoretic}}{E_{gas\ burner}} \times 100$$

Where:

– $EE_{gas\ burner}$= energy efficiency of a gas burner in % and rounded to the first decimal place;

– $E_{gas\ burner}$ = energy content of the consumed gas for the prescribed heating in MJ and rounded to the first decimal place;

– $E_{theoretic}$ = theoretic minimum required energy for the corresponding prescribed heating in MJ and rounded to the first decimal place.

The energy efficiency of the gas hob ($EE_{gas\ hob}$) is calculated as the average of the energy efficiency of the different gas burners ($EE_{gas\ burner}$) of the hob.

2.3. Domestic mixed electric/gas hobs

Domestic mixed electric and gas hobs are treated in the measurements as two separate appliances. Electric cooking zones and cooking areas of the domestic mixed hobs shall follow the provisions of the previous section 2.1 and cooking zones heated by gas burners shall follow the provisions of the previous section 2.2.

3. DOMESTIC RANGE HOODS

3.1. Calculation of the Energy Efficiency Index (EEI_{hood})

The Energy Efficiency Index (EEI_{hood}) is calculated as:

$$EEI_{hood} = \frac{AEC_{hood}}{SAEC_{hood}} \times 100$$

and is rounded to the first decimal place.

Where:

– $SAEC_{hood}$ = Standard Annual Energy consumption of the domestic range hood in kWh/a, rounded to the first decimal place;

– AEC_{hood} = Annual Energy Consumption of the domestic range hood in kWh/a, rounded to the first decimal place.

The Standard Annual Energy Consumption ($SAEC_{hood}$) of a domestic range hood shall be calculated as:

$$SAEC_{hood} = 0.55 \times (W_{BEP} + W_L) + 15.3$$

Where:

– W_{BEP} is the electric power input of the domestic range hood at the best efficiency point, in Watt and rounded to the first decimal place;

– W_L is the nominal electric power input of the lighting system of the domestic range hood on the cooking surface, in Watt and rounded to the first decimal place.

The Annual Energy Consumption (AEC_{hood}) of a domestic range hood is calculated as:

i) for the fully automatic domestic range hoods:

$$AEC_{hood} = \left[\frac{(W_{BEP} \times t_H \times f) + (W_L \times t_L)}{60 \times 1000} + \frac{P_o \times (1440 - t_H \times f)}{2 \times 60 \times 1000} + \frac{P_s \times (1440 - t_H \times f)}{2 \times 60 \times 1000} \right] \times 365$$

ii) for all other domestic range hoods:

$$AEC_{hood} = \frac{[W_{BEP} \times (t_H \times f) + W_L \times t_L]}{60 \times 1000} \times 365$$

Where:

– t_L is the average lighting time per day, in minutes (t_L=120);

– t_H is the average running time per day for domestic range hoods, in minutes, (t_H=60);

– P_o is the electric power input in off-mode of the domestic range hood, in Watt and rounded to the second decimal place;

– P_s is the electric power input in standby mode of the domestic range hood, in Watt and rounded to the second decimal place;

– f is the time increase factor, calculated and rounded to the first decimal place, as:

$$f = 2 - (FDE_{hood} \times 3.6)/100$$

3.2. Calculation of the Fluid Dynamic Efficiency (FDE_{hood})

The FDE_{hood} at the best efficiency point is calculated by the following formula, and is rounded to the first decimal place:

$$FDE_{hood} = \frac{Q_{BEP} \times P_{BEP}}{3600 \times W_{BEP}} \times 100$$

Where:

– Q_{BEP} is the flow rate of the domestic range hood at best efficiency point, expressed in m^3/h and rounded to the first decimal place;

– P_{BEP} is the static pressure difference of the domestic range hood at best efficiency point, expressed in Pa and rounded to the nearest integer;

– W_{BEP} is the electric power input of the domestic range hood at the best efficiency point, expressed in Watt and rounded to the first decimal place.

3.3. Calculation on the limitation of the exhaust air

3.3.1. Domestic range hoods with a maximum air flow in any of the available setting higher than 650 m^3/h shall automatically revert to an air flow lower than or equal to 650 m^3/h in a time t_{limit}. This is the time limit to extract a volume of air of 100 m^3 by the domestic range hood operating with an airflow higher than 650 m^3/h, before automatically switching to an airflow of 650 m^3/h or lower. It is calculated, expressed in minutes and rounded to the nearest integer as:

$$t_{limit} = \frac{6000m^3}{Q_{max}} \quad (6)$$

---

6 see $V = \int_0^t \frac{Q_{max}}{60} \times dt$ which can be simplified to $t_{limit} = \frac{V_{max}}{Q_{max}} \; x \; 60$

Where:
- V_{max} is the maximum volume of air to be extracted, set at 100 m^3;
- Q_{max} is the maximum air flow of the range hood, including intensive/boost mode if present;
- t is the time expressed in minutes and rounded to the nearest integer;
- dt is the total time till the air volume of 100m^3 has been reached;
- t_{limit} is the time limit, expressed in minutes and rounded to the nearest integer, needed to extract 100 m^3.

Where:

– Q_{max} is the maximum air flow of the domestic range hood, including intensive/boost mode if present, in m^3/h and rounded to the first decimal place.

The mere presence of a manual switch or setting decreasing the air flow of the appliance to a value lower than or equal to 650 m^3/h is not considered fulfilling this requirement.

3.3.2. For domestic range hoods with automatic functioning mode during the cooking period:

– the activation of the automatic functioning mode shall be possible only through a manual operation by the user, either on the hood or elsewhere;

– the automatic functioning mode shall revert to manual control after no more than 10 minutes from the moment the automatic function switches off the motor.

3.4. Illumination of lighting system (E_{middle})

The average illumination of the lighting system on the cooking surface (E_{middle}) is measured under standard conditions in lux and rounded to the nearest integer.

3.5. Noise

The Noise Value (in dB) is measured as the airborne acoustical A-weighted sound power emissions (weighted average value - L_{WA}) of a domestic range hood at the highest setting for normal use, intensive or boost excluded, and rounded to the nearest integer.

ANNEX III
Procedure for product conformity checking by market surveillance authorities

For the purposes of assessing conformity of products with the requirements laid down in this Regulation referred to in Article 3(2) of 2009/125/EC, the authorities of the Member States shall apply the following procedure:

1. The Member State authorities shall test one single unit per model.

2. The model shall be considered to comply with the applicable requirements:

   (a) if the values provided in the product information as required by this Regulation are not more favourable for the manufacturer than the values in the technical documentation, including test reports and;

   (b) if testing of the relevant model parameters applying the tolerances listed in Table 7 shows compliance for all of those parameters.

3. If the result referred to in point 2(a) is not achieved, the model and all equivalent models shall be considered not to comply with this Regulation.

4. If the result referred to in point 2(b) is not achieved, the Member State authorities shall select three additional units of the same model for testing. As an alternative, the three additional units selected may be of one or more different models which have been listed as equivalent product in the supplier's technical documentation.

5. The model shall be considered to comply with the applicable requirements if testing of the relevant model parameters listed in Table 7 shows compliance for all of those parameters.

6. If the result referred to in point 5 is not achieved, the model and all equivalent models shall be considered not to comply with this Regulation. The Member State authorities shall provide the test results and other relevant information to the authorities of the other Member States and to the Commission within one month of the decision being taken on the non-compliance of the model.

Member State authorities shall use the measurement and calculation methods set out in Annex II.

The tolerances set in this Annex shall be applied only to the verification of the measured parameters by Member State authorities, representing the allowed variations of the measurement results of the verification tests, and shall not be used by the manufacturer in establishing the values in the technical documentation or in interpreting these values with a view to achieving a better labelling classification or to communicate better performance by any means.

Table 7: Verification tolerances

Measured parameters	Verification tolerances
Mass of the domestic oven (M)	The determined value shall not exceed the declared value of M by more than 5%.
Volume of the cavity of the domestic oven (V)	The determined value shall not be lower than the declared value of V by more than 5%.
$EC_{electric\ cavity}$, $EC_{gas\ cavity}$	The determined value shall not exceed the declared value of $EC_{electric\ cavity}$, $EC_{gas\ cavity}$ by more than 5 %.
$EC_{electric\ hob}$	The determined value shall not exceed the declared value of $EC_{electric\ hob}$ by more than 5%.

$EE_{gas\ hob}$	The determined value shall not be lower than the declared value of $EE_{gas\ hob}$ by more than 5%.
W_{BEP}, W_L	The determined value shall not exceed the declared value of W_{BEP}, W_L by more than 5 %.
Q_{BEP}, P_{BEP}	The determined value shall not be lower than the declared value of Q_{BEP}, P_{BEP} by more than 5%.
Q_{max}	The determined value shall not exceed the declared value of Q_{max} by more than 8 %.
E_{middle}	The determined value shall not be lower than the declared value of E_{middle} by more than 5%.
Sound power level L_{WA}	The determined value shall not exceed the declared value.
P_o, P_s	The determined value of power consumption *Po* and *Ps* shall not exceed the declared value by more than 10 %. The determined value of power consumption *Po* and *Ps* of less than or equal to 1,00 W shall not exceed the declared value by more than 0,10 W.

ANNEX IV
Indicative benchmarks

At the time of entry into force of this Regulation, the best-performing domestic ovens, hobs and range hoods available on the market in terms of their energy performance were identified as follows:

Domestic ovens	Electric	$EEI_{cavity} = 70.7$
	Gas	$EEI_{cavity} = 75.4$
Domestic hobs	Electric	$EC_{electric\ cooking} = 169.3$
	Gas	$EE_{gas\ burner} = 63.5\%$
Domestic range hoods	Air flow	$FDE_{hood} = 22$
	Noise	51dB at 550 m^3/h ; 57 dB at 750 m^3/h