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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)

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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 products¹, 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. 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 off mode electric power consumption of electrical and electronic household and office equipment².

¹ OJ L 285, 31.10.2009, p. 10.

² OJ L 339, 18.12.2008, p. 45.

- (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 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) The relevant product parameters should be measured in a reliable, accurate and reproducible way, which takes into account recognised state-of-the-art measurement methods including, where available, harmonised standards adopted by the European standardisation bodies, as listed in Annex I to Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations and of rules on Information Society services³.
- (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.
- (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

³ OJ L 204, 21.7.1998, p. 37.

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

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, also when used for non-domestic purposes.

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) range hoods without motor;
- (f) covered gas burners in hobs.

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) ‘appliance’ means an energy-using apparatus with a specific function;
- (2) ‘domestic’ means for household use;
- (3) ‘oven’ means an appliance or part of an appliance which incorporates one or more cavities using electricity or gas;
- (4) ‘cavity’ means the enclosed compartment in which the temperature can be controlled for preparation of food;

- (5) 'small oven' means an oven with the cavity width and depth of less than 250 mm or cavity height less than 120 mm;
- (6) 'portable oven' means an oven other than a fixed oven, with a product mass of less than 18 kilograms, provided it is not designed for built-in installations;
- (7) 'microwave heating' means heating of food using electromagnetic energy;
- (8) 'conventional mode' means the operation mode of an oven only using natural convection for circulation of heated air inside the cavity of the oven;
- (9) 'fan-forced mode' means a mode when a built-in fan circulates heated air inside the cavity of the oven;
- (10) 'cycle' means the period of heating a standardised load in a cavity of an oven under defined conditions;
- (11) 'cooker' or 'cooking range' means an appliance consisting of an oven and a hob using gas or electricity;
- (12) 'operation mode' means the status of the oven or hob during use;
- (13) 'heat source' means the main energy form for heating an oven or hob;
- (14) '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 heated by electricity;
- (15) 'gas hob' means an appliance or part of an appliance which incorporates one or more cooking zones, heated by gas burners
- (16) 'hob' means an 'electric hob', a 'gas hob' or a combination of both;
- (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 of an electric hob where cookware is placed and heated; the area of the cooking zone being 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 a motor-operated appliance intended to collect contaminated air from above a hob or which includes a downdraft system intended for installation adjacent to cooking appliances, that draws vapour down into an internal exhaust duct. The blower of the range hood may be internal or external, provided that it is controlled by the range hood. The air may be ducted away or discharged back into the room after filtration;
- (21) 'range hood without motor' means an appliance intended to collect contaminated air from above a hob connected to a ventilation appliance not controlled by the range hood;
- (22) '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.;
- (23) '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;

- (24) ‘best efficiency point’ (BEP) means the range hood operating point with maximum fluid dynamic efficiency;
- (25) ‘average illumination’ (E_{middle}) means the average illumination provided by the lighting system of the range hood on the cooking surface, measured in lux;
- (26) ‘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/EC⁴;
- (27) ‘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;
- (28) ‘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;
- (29) ‘information or status display’ means a continuous function providing information or indicating the status of the equipment on a display, including clocks;
- (30) ‘end-user’ means a consumer buying or expected to buy a product;
- (31) ‘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.

Article 3

Ecodesign requirements and timetable

1. The ecodesign requirements for domestic ovens, hobs and range hoods are set out in Annex I.
2. Each ecodesign requirement shall apply in accordance with the following timetable:
 - (a) from 1 July 2014:
 - i) domestic ovens, hobs and range hoods shall correspond to the energy efficiency, fluid dynamic efficiency, air flow, low power mode and illumination requirements as indicated in point 1(1), 1(2) and 1(3) of Annex I;
 - ii) domestic ovens, hobs and range hoods shall correspond to the product information requirements as indicated in point 2 of Annex I;
 - (b) from 1 July 2016:

domestic ovens, hobs and range hoods shall correspond to the energy efficiency, fluid dynamic efficiency and low power mode requirements as indicated in point 1(1), 1(2) and 1(3) of Annex I;
 - (c) from 1 July 2018:

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

domestic ovens, hobs and range hoods shall correspond to the energy efficiency and fluid dynamic efficiency requirements as indicated in point 1(1), 1(2) and 1(3) of Annex I.

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

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.

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 no later than 1 July 2020 and present the result of this review to the Consultation Forum. The review should assess, amongst others, the feasibility of potential requirements to enhance the recovery and recycling of the appliances.

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 July 2014.

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 have the **maximum Energy Efficiency Index as indicated in Table 1.**

Table 1 - Energy Efficiency Index limits for cavities of domestic ovens ($EEI_{oven\ cavity}$)	
Domestic electric & gas oven	
From 1 July 2014	$EEI_{cavity} < 146$
From 1 July 2016	$EEI_{cavity} < 121$
From 1 July 2018	$EEI_{cavity} < 96$

1.2. For domestic hobs

The **domestic hobs shall have the maximum energy efficiency performance limits for electric cooking zones or areas ($EC_{electric\ cooking}$) and/or for gas-fired burners ($EE_{gas\ burner}$) as indicated in Table 2.**

Table 2 - Energy efficiency performance limits for domestic hobs ($EC_{electric\ cooking}$ and $EE_{gas\ burner}$)		
	Electric cooking zone or area ($EC_{electric\ cooking}$ in Wh/kg.)	Gas-fired burner ($EE_{gas\ burner}$ in %)
From 1 July 2014	$EC_{electric\ cooking} < 210$	$EE_{gas\ burner} > 53\%$
From 1 July 2016	$EC_{electric\ cooking} < 200$	$EE_{gas\ burner} > 54\%$
From 1 July 2018	$EC_{electric\ cooking} < 195$	$EE_{gas\ burner} > 55\%$

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 July 2014	$EEI_{hood} < 120$	$FDE_{hood} > 3$
From 1 July 2016	$EEI_{hood} < 110$	$FDE_{hood} > 5$
From 1 July 2018	$EEI_{hood} < 100$	$FDE_{hood} > 8$

1.3.2. Air flow

From 1 July 2014, the domestic range hoods with a maximum air flow in any of the available setting higher than 650 m³/h shall automatically revert to an air flow lower than or equal to 650 m³/h in a time *t* as defined in Annex II.

1.3.3. *Low power modes for domestic range hoods*

(1) From 1 January 2015:

- 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, except where this is inappropriate for the intended use (i.e. full automatic range hoods), 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 1 January 2017:

- 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.
- 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.
- 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.

1.3.4. *Illumination of the lighting*

From 1 July 2014, the average illumination of the lighting system on the cooking surface (E_{middle}) shall be higher than 40 lux.

2. Product information **REQUIREMENTS**

The information on domestic cooking appliances set out in points above shall be visibly displayed on the technical documentation of the product, on the booklet of instructions and on the free access websites of manufacturers of domestic cooking appliances, their authorised representatives, or importers. It shall contain the following elements:

- (a) any information required to be published in respect of the domestic cooking appliances under any delegated acts adopted under Directive 2010/30/EU⁵;
- (b) short title or reference to the measurement and calculation methods used to establish compliance with the above requirements;
- (c) information relevant for non-destructive disassembly for maintenance purposes;
- (d) information relevant for dismantling, in particular in relation to the motor and any batteries, recycling, recovery and disposal at end-of-life;
- (e) information relevant to users in order to reduce total environmental impact (e.g. energy use) of the cooking process.

From 1 July 2014, the following product information shall be provided:

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)	$EC_{\text{electric cavity}}$	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 energy)	$EC_{\text{electric cavity}}$	X.XX	kWh/cycle

⁵ OJ L 153, 18.6.2010, p. 1.

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)	$EC_{\text{gas cavity}}$	X.XX X.XX	MJ/cycle kWh/cycle ⁶
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)	$EC_{\text{gas cavity}}$	X.XX X.XX	MJ/cycle kWh/cycle
Energy Efficiency Index per cavity	EEl_{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 controls of cooking zones and/or areas which can be operated at the same time		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	$EC_{\text{electric cooking}}$	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			
Total nominal heat input for gas hob	HI_{tot}	X.X	kW
Number of gas burners		X	
Energy efficiency per gas burner	$EE_{\text{gas burner}}$	X.X	

2.2.3. Domestic mixed gas and electric hobs

Table 5c – Information for domestic mixed hobs			
	Symbol	Value	Unit
Model identification			
Type of hob			

⁶ 1 kWh/cycle = 3.6 MJ/cycle

Number of controls of electric cooking zones and/or areas which can be operated at the same time		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.	\emptyset	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
Increase factor	f	X.X	
Fluid Dynamic Efficiency	FDE _{hood}	X.X	
Energy Efficiency Index	EEl _{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	m ³ /h
Measured electric power input at best efficiency point	W _{BEP}	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. The actual temperature inside the oven cavity shall correspond to the temperature setting of the oven thermostat and/or the oven control display during the complete measurement. 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 electric and gas ovens, 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;
- $SEC_{electric\ cavity}$ = Specific 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;
- $SEC_{gas\ cavity}$ = Specific 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 second 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

Measuring the energy consumption of a domestic electric hob shall be done for each cooking zone and cooking area separately. The energy consumption of an electric cooking zone or area in a domestic hob ($EC_{electric\ cooking}$) is measured in Wh per kg of water heated in a normalised measurement (Wh/kg) 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.

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:

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

burner

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 Specific 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:

$$AEC_{hood} = \left[\frac{(W_{BEP} \times t_H \times f) + (W_L \times t_L)}{t_H \times 1.000} + \frac{P_o \times (1.440 - t_H \times f)}{2 \times t_H \times 1.000} + \frac{P_s \times (1.440 - t_H \times f)}{2 \times t_H \times 1.000} \right] \times 365$$

- 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:

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

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 nearest integer.

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:

$$t_{limit} = \frac{6000m^3}{Q_{max}} \quad (7)$$

Where:

7 see $V = \int_0^t \frac{Q_{max}}{60} \times d(t)$ which can be simplified to $t_{limit} = \frac{V_{max}}{Q_{max}} \times 60$

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;
- $d(t)$ 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 $100 m^3$.

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 $650 \text{ m}^3/\text{h}$ 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 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

Verification procedure for market surveillance purposes

When performing the market surveillance checks referred to in Article 3(2) of 2009/125/EC, the authorities of the Member States shall apply the following verification procedure for the requirements set out in Article 3 and Annex I, using the measurement and calculation methods set out in Annex II:

- (1) The Member State authorities shall test one single unit per model.
- (2) The model shall be considered to comply with the applicable requirements set out in Annex I to this Regulation if the values in the technical documentation comply with the requirements set out in that Annex and if testing of the relevant model parameters listed in Annex I and Table 7 shows compliance for all of those parameters.
- (3) If the result referred to in point 2 is not achieved, the Member State authorities shall randomly 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, in accordance with Article 4, have been listed as equivalent model in the manufacturer's technical documentation.
- (4) The model shall be considered to comply with the applicable requirements set out in Annex I to this Regulation if testing of the relevant model parameters listed in Annex I and Table 7 shows compliance for all of those parameters.
- (5) If the results referred to in point 4 are not achieved, the model and all equivalent models shall be considered not to comply with this Regulation.

The verification tolerances defined in this Annex relate only to the verification of the measured parameters by Member State authorities and shall not be used by the manufacturer or the importer as an allowed tolerance to establish the values in the technical documentation.

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 exceed the declared value of V by more than 5%.
EEI _{cavity} , EC _{electric cavity} , EC _{gas cavity}	The determined value ^(*) shall not exceed the declared value of EEI _{cavity} , EC _{electric cavity} , EC _{gas cavity} by more than 5%.
EC _{electric cooking}	The determined value ^(*) shall not exceed the declared value of EC _{electric cooking} by more than 5%.
EE _{gas burner}	The determined value ^(*) shall not be lower than the declared value of EE _{gas burner} by more than 5%.
EEI _{hood} , AEC _{hood} , W _{BEP} , W _L , P _o , P _s	The determined value ^(*) shall not exceed the declared value of EEI _{hood} , AEC _{hood} , W _{BEP} , W _L , P _o , P _s by more than 5%.
FDE _{hood} , Q _{BEP} , P _{BEP}	The determined value ^(*) shall not be lower than the declared value of FDE _{hood} , 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.

(*) The arithmetic average of the values determined in the case of three additional units tested as prescribed in point 3.

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	$EEl_{cavity} = 70,7$
	Gas	$EEl_{cavity} = 75,4$
Domestic hobs	Electric	$EC_{electric\ cooking} = 169.3$
	Gas	$EE_{gas\ burner} = 66.7\%$
Domestic range hoods	Air flow	$FDE_{hood} = 22$
	Noise	51dB at 550 m ³ /h ; 57 dB at 750 m ³ /h
	Grease filtering	$GFE_{hood} = 91\%$
	Lighting efficiency	$LE_{hood} = 29\%$